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Physical Examination for Tuberculosis

By Director E. SCHARR and DR. OPALKA

From the Bacteriologic Institute of the Agricultural Department for the Province of Brandenburg, Germany

Editor's Note.—On account of the widespread interest in physical examination for tuberculosis in cattle this article was translated by Dr. A. T. Peters, Springfield, Illinois, Director of the State Biologic Laboratory and is published, for the purpose of education, by direction of the Board of Live Stock Commissioners of the State of Illinois.

THE establishment of the diagnosis of tuberculosis in living animals has become of far greater importance since the enactment of the new imperial live stock sanitary laws. According to paragraph ten of this law, it is compulsory to report all cases of tuberculosis, which have been diagnosed by a physical examination, and especially all advanced cases, of lung, udder, intestinal and uterus tuberculosis. The bacteriologic examination of the udder, uterus and intestine is not difficult; but this is not always the case with the bacteriologic examination of the lungs of cattle.

The necessary material for a positive diagnosis can be easily secured from the udder, uterus and intestine, while on the contrary the material from the lungs is secured with difficulty. On account of the many difficulties which have been encountered many suggestions have been made. Of these the method suggested by Pool has given the best results, and seems to have the least objections. It consists in taking the material direct from the trachea and bronchial tubes. According to the experiments of Neuhouse we are convinced that the material taken from the lung is best obtained with a cotton swab fastened to a wire which is pushed through the canula of a trocar, which has been inserted into the trachea and the swab is then pushed down to the bifurcation of the lungs.

Instruments Required

An important problem for us to solve was first the construction of a suitable canula, so constructed that it could be easily inserted through the walls of the trachea and the surrounding tissue without first using the knife to remove a part of the trachea. The canula which answered these requirements was described by us in the Zeitschrift für Hygiene und Infectionskrankheiten der Haustiere (Nr. 5-1911 seite 332). It was also necessary to find a suitable wire on which to carry the cotton swab into the trachea. This wire must be very fine and of medium elasticity and flexibility so that when it is inserted into the trachea it will not double up. With the help of the described instruments and the holding of the head in position, which will be described later, we had no difficulty in inserting the cotton swab in the trachea and its bifurcation but in a few cases it was impossible to remove the swab through the

canula. The wire which fastened the cotton to the carrier became entangled on the tip of the trocar and all that could be done in this case was to remove the trocar and the wire with the cotton swab attached

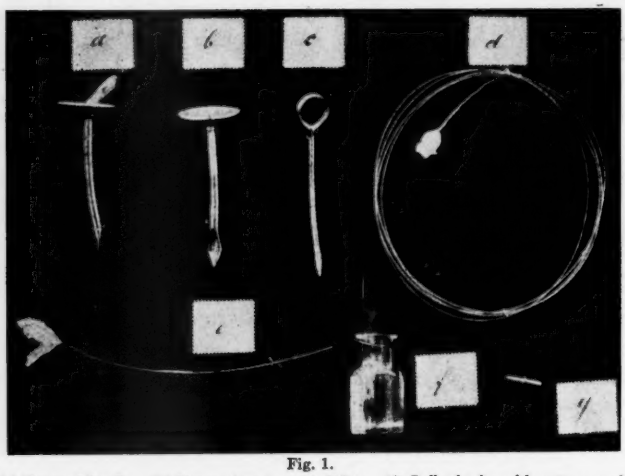

Fig. 1.

(a) Trocar (closed). (b) Trocar (open). (c) Stilet. (d) Roll of wire with cotton swab. (e) Upper end of wire with cotton swab inserted and slide for fastening wire in position. (f) Bottle for preserving and shipping specimen. Note how wire is cut off above cork. (g) Nickel plated slide.

together. This had the disadvantage that by the removal of the trocar and the cotton, the contraction of the muscles removed in part or wholly the material for examination from the swab. Whenever the above described case occurs one might be led to make an incorrect bacteriologic diagnosis of the swab. To obviate this condition we decided to fasten the swab in a different manner, namely: by the use of a slide. Figure 1 shows the manner in which the nickel sliding tube is passed over the bent wire which holds the cotton swab in place. This improved method of fastening the swab is simple and easily done and a reliable and positive way to successfully extract the swab from the trocar because the sliding tube has a very smooth surface which is conical on the end which goes over the folded end of the wire. In this way all possibility of the swab becoming fastened is avoided. The accompanying illustration shows the necessary instruments for the work.

Method of Using the Instruments

After applying the twitch to the nose, an assistant holds the head upward or a rope fastened to the twitch can be thrown over a beam or rafter and the head held upward in this manner. Another assistant standing on the right side of the animal holds the horns and turns the neck in such a position that the trachea is exposed to the operator on the right. See Figure 2. After disinfecting the skin the trocar with stilet pointing slightly downward is inserted about three or four finger widths from the aboral end of the larynx into the trachea. See Figure 3. It is not absolutely necessary that the insertion should be made between two rings because the lancet shaped form of the trocar allows it to penetrate the rings with ease, even in old animals. See Figure 4. After removal of the stilet the wire with attached swab is inserted through the trocar into the trachea and its branches

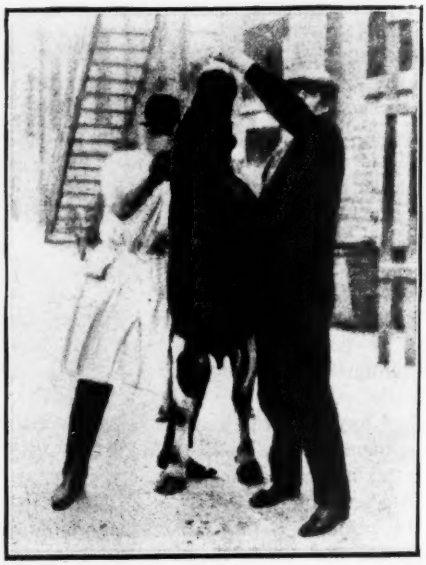

Fig. 2.

with little or no assistance, to a depth of one and one-half meters, then pulled up and downward and turned several times and removed. See Figure 5. The slime-covered swab is placed in a labelled sterilized bottle in which condition it should

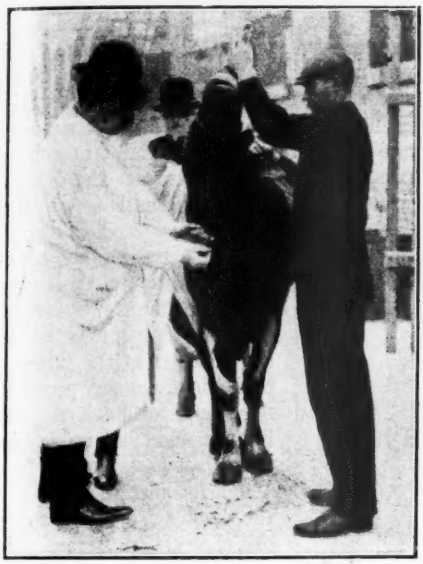

Fig. 3.

be taken to the laboratory at the earliest possible moment, for bacteriologic examination.

The securing of lung sputum by the above described method is not met with technical obstacles. The operation when properly performed should be bloodless and is not accompanied by any bad results, which we have demonstrated by many observations and experiments. Complications resulting from this operation are hardly possible, owing to the fact that the trocar's sharp cutting surface makes only a small wound which readily heals in a few days. This has been proven by post mortem on animals which had been operated no a few days previous. To form an accurate opinion of the value of this method of determining open tuberculosis in a living animal, we conducted numerous experiments on cattle at the slaughter house, the results of which will be given in detail. Thanks are due to Dr. Henschel, Chief Veterinarian of the abattoir who made it possible for us to conduct these experiments.

Method of Experiments

1. Physical examination of cattle.
2. Securing lung sputum.
3. Post-mortem examination immediately after slaughter.
4. Microscopic examination of a smear-preparation from the swab.
5. Animal inoculation with material in at least two guinea pigs.
6. Post-mortem examination of inoculated animals six weeks later.

1. Physical examination of cattle.—Cattle for experiments were taken from lowland districts. With exception of No. 54 which was an emaciated cow, all others were in good physical condition. In some cases (No. 50 and 54) physical examination revealed a languid dull appearance of the eyes. Other symptoms by which tuberculosis could be diagnosed such as spontaneous coughing, a tough, hide-bound condition of the skin, a dry, stiff lustreless coat of hair was found in only a few cases (Nos.

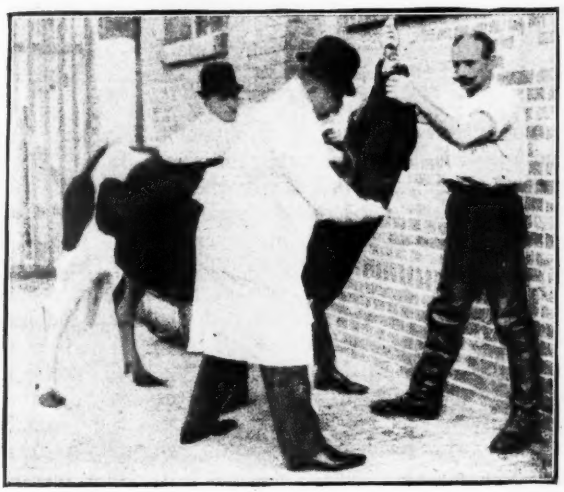

Fig. 4.

3, 11, 22, and 50 to 54). The physical examination of the accessible lymph glands was found affected in only one case. In this particular animal (No. 51), the left prescapular gland was the size of a man's head and was hard and rough to the touch. In connection with the physical examination of these animals, auscultation of the lungs was done in order to ascertain the deep breathing. The mouth and nose were temporarily covered with a leather cloth saturated in a solution of lysol.

2. Securing lung sputum.—After auscultation and physical examination all suspicious animals were subjected to the previously described method of obtaining sputum. The cough produced by the introduction of the swab into the trachea is helpful inasmuch as it forces the slime into the trachea that would be otherwise inaccessible. On the other hand post-mortem examinations have revealed to us that the cotton swab can be inserted into the diseased parts and the diseased parts may be removed on the swab. This was especially noticeable in a case where the lobe of the diaphragm was affected. Occasionally when removing the swab through the trocar pieces of tissue would adhere to it, which upon bacteriologic examination were found to contain tubercle bacilli.

Fig. 5.

3. Post-Mortem Examination.—As soon as the sample was obtained from the lungs a careful autopsy made.

4. Microscopic Examination. — From every fresh sample a number of smear preparations were made and stained according to Ziehl.

5. Animal inoculation experiments.—Whereas in the beginning we merely washed the swab in a sterile normal salt solution, which was subcutaneously injected into guinea pigs, from No. 30 on the entire swab was used after taking only enough for a smear preparation. The reason for this change was that very often after washing and inoculating this material into guinea pigs, they would not contract the disease while microscopic examinations of the material showed tubercle bacilli. On the other hand the inoculation of the entire swab into guinea pigs showed eight positive results where the existence of the tubercle bacilli in the smear preparation could not be found. It is therefore advisable in nearly all cases to resort to animal inoculation and to use the whole swab inasmuch as our observations have shown that animals stand this method very well.

6. Post-mortem examination of animals six weeks later.—The general plan of observing animals inoculated six weeks can be terminated much sooner. In six cases the symptoms were prominent in ten days (Cases 32, 36, 46, 49, 51, and 53).

Summary

The following table shows our experimental data and we wish to again emphasize that the first twenty-nine cases of inoculations were those of a washed solution and all remaining ones were inoculated with the whole swab. Of the fifty-four cattle physically examined and declared tubercular, fifty-two cases upon post-mortem examination revealed more or less tuberculosis, thirty-five had lung tuberculosis, eleven had tuberculosis of the lung and other organs, especially the pleura, three had tuberculosis of the serous membrane (miliary) while only three had tubercular

lymphatic glands. In two cases (Nos. 3 and 11) a number of pus clusters were found on the lungs on post mortem examination. Bacteriologic examination revealed a number of streptococci and animal inoculation showed that the animal was not tubercular. Of the fifty-two animals slaughtered for tuberculosis, forty-one were found tubercular by the bacteriologic examination, which according to the form, size and acid-fast properties of the organism were pronounced tubercle bacilli.

In twenty cases the microscopic, as well as the animal inoculations revealed tuberculosis, and in eight cases the diagnosis could only be ascertained by animal inoculation. The forty-one animals in which tuberculosis was diagnosed by bacteriologic methods revealed lesions, as follows: Twenty-eight animals had lung tuberculosis, eleven had tuberculosis of the lung and other organs and two tuberculosis of lymphatic glands.

From the information gathered by the bacteriologic examination for lung tuberculosis we find the following cases (Nos. 12, 20, 27, 28, 31, and 39) to have deep-seated cheesy degenerated tissue; also that the disease had extended to the bifurcation of the trachea and made it comparatively easy to secure material in these cases. On the contrary the bacteriologic examination in cases (30 and 34) showed no evidence of tubercle bacilli but the autopsies revealed only a slightly affected lymphatic gland. No evidence of tuberculosis could be found in the lungs or any other organ. It is interesting to note that these animals had been standing with others affected with open tuberculosis. The bacteriologic examination failed to reveal serous tuberculosis, no matter how extensive. The claim that serous or latent tuberculosis is not harmful to neighboring animals is sustained by our investigations. To recapitulate we find:

1. That we are able to detect from seventy-eight to eighty-four percent of extensive lung tuberculosis by the method just described.

2. That not all cases of lung tuberculosis can be detected by this method is due to the fact that, in most cases the tubercle bacilli were incapsulated or existed in such small numbers that they escaped bacteriologic examination.

Conclusion

1. With the aid of our trocar and swab we are enabled to procure safely and easily sputum specimens without injury to the animal.

2. To obtain the most positive diagnosis the swab should be inoculated into guinea pigs.

3. From our experiments we conclude that open tuberculosis of the lungs can be detected in almost all advanced cases by this method and in a few cases we were able to detect it in the earliest stages, where no clinical symptoms (such as cough, emaciation, etc.), were present.

4. Serous tuberculosis cannot be positively ascertained by this method.

5. The described method is a valuable one for the detection of open tuberculosis in cattle. Though it would seem rational to destroy all tuberculous cattle, this cannot be done owing to the fact that the percentage of slightly affected animals is too great and the value so enormous that the State cannot afford to pay for them all. It is necessary for the sanitary officers to find a more economical method than indiscriminate slaughter of all tuberculous animals.

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[The charts accompanying this article are given on pages 164-165-166.—ED.]

THE treatment of chronic obstipation with paraffine injections, by Lipowski (Münchener Med. Wochenschr., 1910, Vol. 57, p. 2635).—According to this author chronic constipation is due to an increased resorbent capacity of the colon. The contents of this portion of the intestine as a result take on a pasty consistency and become attached to the walls of the canal. As deposition goes on the fecal matter becomes hard and eventually becomes covered with mucus. In order to prevent resorption 200 Cc. of a paraffine mixture whose melting point lies below 37° to 38° C. (98.6°–100.4° F.) is injected after being liquefied into the canal per rectum with a funnel and tube or with a heated syringe.

Animal Number	Results of Physical Examination	Results of Post Mortem Examination	Results of Bacteriologic Examination of Sputum	Results of Animal Inoculation
1	Dry rales on both sides.	Many pear-sized caseous clusters in the bronchial and mediastinal glands. Numerous caseous abscesses in the lungs.	Few tubercle bacilli.	Negative.
2	Slightly arrested breathing in the upper third, dry rales on the left side.	Many pea-sized caseous clusters on the right portion of the diaphragm, bronchial and mediastinal glands the same.	Small number of tubercle bacilli.	Negative.
3	Difficult breathing on the right side, with rales on the left.	Many pea-sized pus nodules on right portion of the diaphragm, bronchial and mediastinal glands affected.	Numerous streptococci.	Numerous abscesses in the liver and spleen; bacteriologic examination revealed streptococci.
4	Difficult breathing on both sides.	The pleura covered with numerous masses of nodules; extensive purulent broncho-pneumonia; cheesy, degenerated lymph glands.	Negative.	Axillary glands caseated, also spleen. Bacteriologic examination revealed tubercle bacilli.
5]	Difficult breathing on both sides.	Numerous pear-sized caseous nodules and bronchial glands affected.	Few tubercle bacilli.	Negative.
6	Difficult breathing on both sides, especially on the left.	Few scattered, cheesy abscesses in the bronchial glands, a large abscess at the base of left lung of the size of a baseball.	Negative.	Spleen, liver and lymph glands studded with cheesy abscesses. Bacteriologic examination showed tubercle bacilli.
7	Difficult breathing on left side, rales on right side, especially on the upper posterior end.	Numerous calcified nodules on the right side of diaphragm, enlarged bronchial glands.	Few tubercle bacilli.	Generalized tuberculosis; numerous tubercle bacilli on bacteriologic examination.
8	Dry rales on both sides.	Soft cheesy masses in both lungs, also in the lymphatic glands.	Negative.	Axillary gland caseated, spleen and liver the same. Bacteriologic examination tubercle revealed bacilli.
9	Dry rales in the right lung, and difficult breathing on both sides.	Two soft abscesses about the size of a goose egg in the right lung, bronchial glands affected.	Negative.	Negative.
10	Difficult breathing in the anterior portion of the left lung, rales on both sides.	The pleura studded with numerous calcified abscesses; in the lungs were found isolated abscesses. Bronchial and mediastinal glands affected.	Negative.	The axillary gland and spleen were penetrated with abscesses; bacteriologic examination, showed tubercle bacilli.
11	Acute breathing on both sides, slight rales.	Numerous pus abscesses in both lungs, bronchial glands slightly enlarged.	Numerous streptococci.	Ten days after inoculation purulent inflammation of the lungs, peritonitis, pus abscesses of the spleen and liver; bacteriologic examination revealed streptococci.
12	In the posterior upper left lung rales; the remainder acute breathing.	Calcified abscess in the posterior left lung, the same in the bronchial gland.	Negative.	Axillary glands calcified; in the spleen and liver small abscesses: bacteriolgic examination showed tubercle bacilli.
13	Dry rales on both sides.	Both lungs calcified, abscesses of the size of a man's fist; bronchial and mediastinal glands affected.	Few tubercle bacilli.	Negative.
14	Acute breathing on both sides and slight rales.	Numerous abscesses from the size of a pea to a walnut in both lungs, bronchial glands calcified.	Few tubercle bacilli.	Negative.
15	In the posterior upper third near the spinal column on both sides arrested breathing and rales.	On both sides of the diaphragm numerous caseous abscesses. Bronchial and mediastinal glands affected.	Few tubercle bacilli.	Negative.
16	Acute breathing in the right lower third.	In the right anterior lobe numerous calcified abscesses, same in the bronchial and mediastinal glands.	Isolated tubercle bacilli.	Axillary gland, liver and spleen calcified abscesses; bacteriologic examination demonstrated numerous tubercle bacilli.
17	In the upper right third difficult breathing and rales.	In the right lung near base numerous abscesses of the size of a walnut; the same in bronchial glands.	Few tubercle bacilli.	Negative.
18	Both sides rales and acute breathing.	In both lungs numerous calcified abscesses, bronchial and mediastinal glands enlarged.	Isolated tubercle bacilli.	Negative.

Animal Number	Results of Physical Examination	Results of Post Mortem Examination	Results of Bacteriologic Examination of Sputum	Results of Animal Inoculation
19	Slightly acute breathing with rales on both sides.	Both lungs and bronchial glands affected with numerous calcified abscesses the size of a walnut.	Few tubercle bacilli.	Negative.
20	The right upper third dry rales.	In the right lung two large calcified abscesses the size of a child's head; bronchial and mediastinal glands calcified.	Few tubercle bacilli.	Negative.
21	Both sides, the upper third, difficult breathing and rales.	Both branches of the diaphragm numerous calcified clusters the size of a walnut; bronchial and mediastinal glands calcified.	Isolated tubercle bacilli.	Axillary glands contained numerous calcified clusters, also in the spleen and liver; bacteriologic examination showed tubercle bacilli.
22	Acute breathing and rales in the lower third right lung.	In both lungs numerous calcified abscesses; bronchial and mediastinal glands calcified.	Numerous tubercle bacilli.	Axillary glands, spleen and liver contained a number of calcified abscesses; bacteriologic examination revealed tubercle bacilli.
23	Dry rales and acute breathing on both sides.	A number of calcified abscesses, of the size of a goose egg in both lungs, and in bronchial glands.	Isolated tubercle bacilli.	In the spleen and the axillary gland a number of calcified abscesses; bacteriologic examination revealed tubercle bacilli.
24	Acute breathing in the right lung and rales.	In the right lung a number of cheesy and calcified abscesses; bronchial glands calcified.	Isolated tubercle bacilli.	Negative.
25	Arrested breathing in both lungs.	Both lungs numerous calcified abscesses; the same in bronchial and mediastinal glands.	Few tubercle bacilli.	Liver, spleen and the axillary gland affected with numerous abscesses; bacteriologic examination revealed tubercle bacilli.
26	Arrested breathing in both lungs.	Extensive tuberculosis of costal pleura and numerous abscesses in the lungs and bronchial and mediastinal glands.	Few tubercle bacilli.	Negative.
27	Slightly arrested breathing in the right lung, and dry rales.	On the pleura a number of calcified abscesses of the size of a hazelnut to the size of a walnut; in the right lung large calcified abscesses of the size of a man's fist, also in the bronchial and mediastinal glands.	Few tubercle bacilli.	A smear preparation showed tubercle bacilli from the spleen and the axillary glands.
28	Both sides acute breathing.	In the right lung isolated abscesses of the size of a hazelnut. On the costal pleura and pulmonalis of the size of a walnut; bronchial and mediastinal glands affected.	Few tubercle bacilli.	Negative.
29	Right lung acute breathing, especially in the lower third.	In the right lung two small, calcified abscesses; bronchial glands affected.	Negative.	Negative.
30	Acute breathing in both lungs.	Bronchial and mediastinal glands enlarged and partly calcified; in the lungs no visible change.	Negative.	In the animal that had been inoculated four weeks after axillary cheesy, degeneration; smear preparation showed tubercle bacilli.
31	Acute breathing in both lungs.	Extensive tuberculosis of the pleura, isolated abscesses; in both lungs bronchial and mediastinal glands affected.	Few tubercle bacilli.	The spleen, liver and axillary contained lymph-node tubercular abscesses; bacteriologic examination revealed tubercle bacilli.
32	Both sides acute breathing, dry rales.	In both lungs a number of calcified abscesses of the size of a hen's egg; bronchial and mediastinal glands enlarged and calcified.	Few tubercle bacilli	Ten days after inoculation at the seat of same a swelling appeared; smear preparation showed tubercle bacilli.
33	Difficult breathing in both lungs	Acute tuberculosis of lung and pleura, bronchial and mediastinal glands enlarged and calcified.	Negative.	Negative.
34	Acute breathing in both lungs.	In the bronchial glands numerous calcified abscesses, lungs apparently normal.	Few tubercle bacilli.	The axillary enlarged; smear preparation showed tubercle bacilli.
35	In the left lung dry rales.	In the left lobe of the diaphragm a number of abscesses of the size of a man's fist; bronchial glands affected.	Isolated tubercle bacilli.	Four weeks after inoculation axillary showed tubercle bacilli on examination.

Animal Number	Results of Physical Examination	Results of Post Mortem Examination	Results of Bacteriologic Examination of Sputum	Results of Animal Inoculation
36	Acute breathing in both lungs; dry rales in the lower third.	In the pleura and peritoneum numerous acute cheesy abscesses, in the anterior lobe of the right lung a number of abscesses; bronchial and mediastinal glands affected.	Isolated tubercle bacilli.	Ten days after inoculation abscess appeared at seat of inoculation, tubercle bacilli were found in the pus as well as in the smear preparation of the axillary gland.
37	Arrested breathing in both lungs.	Acute tuberculosis of pleura and lungs, cheesy degenerated bronchial and mediastinal glands.	Negative.	Negative.
38	Acute breathing and rales in both lungs.	Cheesy and calcified abscesses in the bronchial glands, lungs apparently normal.	Negative.	Negative.
39	Dry rales and acute breathing in both lungs.	In the anterior lobe of the right lung cheesy abscesses of the size of a man's head, bronchial and mediastinal glands affected.	Isolated tubercle bacilli.	Smear preparation from the axillary lymph-node showed tubercle bacilli.
40	Acute breathing in the right lung and dry rales.	In the bronchial glands a number of cheesy abscesses, the same in the right lung.	Negative.	Negative.
41	Arrested breathing in both lungs and rales.	In both lungs cheesy abscesses of the size of a walnut, the same in the bronchial gland.	Negative.	Guinea pig destroyed four weeks later showed axillary glands affected; bacteriologic examination revealed tubercle bacilli.
42	In he left upper third rales, acute breathing both in inspiration and expiration.	At the base of the left lung a large cheesy abscess of the size of a walnut and the same in the bronchial gland.	Negative.	Negative.
43	In both lungs dry rales and acute breathing.	Chronic tuberculosis, calcified abscesses in both lungs and in the bronchial glands.	Negative.	Negative.
44	In the upper third right lung, rales and acute breathing.	In the right lung a number of calcified abscesses the same in the bronchial gland.	Isolated tubercle bacilli.	In the spleen and lymph glands, numerous abscesses the size of a pin head; bacteriologic examination showed tubercle bacilli.
45	Arrested breathing in both lungs	Numerous layers of a peculiar growth on the pleura and lungs.	Negative.	Negative.
46	Dry rales in both lungs and acute breathing.	Numerous calcified abscesses in the lungs and bronchial gland.	Isolated tubercle bacilli.	Ten days after inoculation pus taken from the abscess at the point of inoculation showed tubercle bacilli; found also in the auxillary gland.
47	Arrested breathing and dry rales on both sides.	A number of layers of calcified material on pleura; in the lungs a number of abscesses; bronchial and mediastinal glands affected.	Isolated tubercle bacilli.	Smear preparation from the axillary gland tubercle bacilli.
48	Arrested breathing in both lungs.	Isolated calcified abscesses both lobes of the diaphragm; bronchial and mediastinal glands affected.	Negative.	Negative.
49	Acute breathing in both lungs.	In the lungs a conglomerated mass of cheesy abscesses; bronchial and mediastinal glands affected.	Isolated tubercle bacilli.	Ten days after inoculation pus from the seat of inoculation showed tubercle bacilli; the same in the axillary glands.
50	The upper third of the right lung acute breathing; in the left, dry rales.	Numerous calcified abscesses in both lungs and on the pleura; bronchial and mediastinal glands calcified.	Isolated tubercle bacilli.	Bacteriologic examination of the axillary gland and spleen revealed tubercle bacilli.
51	The upper third of the right lung arrested breathing, the left acute breathing.	In both lobes of the diaphragm numerous cheesy abscesses; the left axillary gland enlarged to the size of a man's head; bronchial glands affected.	Isolated tubercle bacilli.	Post-mortem examination on guinea pig nine days later, bacteriologic examination of the auxillary gland showed tubercle bacilli.
52	Arrested breathing in the upper third of the right lung, dry rales in both.	In both lungs especially the right, calcified abscesses, bronchial glands enlarged and calcified.	Negative.	Negative.
53	In both lungs acute breathing and dry rales.	In both lobes of the diaphragm large abscesses the size of a walnut, bronchial and mediastinal glands calcified.	Isolated tubercle bacilli.	Nine days after inoculation at point of inoculation tubercle bacilli were found, likewise in the axillary glands.
54	Both sides acute breathing and dry rales.	Numerous cheesy abscesses in both lungs; bronchial and mediastinal glands affected.	Negative.	The axillary lymph-node and liver and spleen cheesy abscesses; bacteriologic examination revealed tubercle bacilli in large numbers.

Differentiation of Various So-Called Colics of the Soliped*

By RICHARD P. LYMAN, B. S., M. D. V.
Professor of Veterinary Science, Michigan Agricultural College, East Lansing, Michigan

IN such a gathering as this it is not essential to consider the classical etiologic factors, general symptomatology, or routine therapeutics. The omission of all preliminaries affords an opportunity to turn at once to the subject, and allows us to reason out first the "whyfor" of the words, "so-called colics," before launching into the real issue.

SOCALLED FALSE COLICS

Probably no word is more commonly used by the laity, and also (through force of circumstance and habit) by the veterinarian, in referring to animal diseases, especially diseases of the horse, than the word "colic." It is used to indicate a condition characterized by certain evidences of pain that is by no means always correctly attributed to a disturbance within any one group of organs; we find "colicky" manifestations associated with perverted respiratory, urinary, reproductive and digestive functions, with disturbances of the muscular system and also accompanying certain specific and general systemic diseases. When purely of enteric origin, colic is classically known as enteralgia; this is "true colic." Other forms, or the "false colics," on the whole are less intricate, and these will first occupy our attention. Remember that we are dealing essentially with differentiating facts, all else being largely omitted.

Diseases Manifesting Colicky Pains

Among the array of diseases or disturbances coming more especially under the arbitrary classification of "false colic" may be cited laryngeal, pharyngeal, and esophageal troubles, pleurisy, strangles, purpura hemorrhagica, influenza, tetanus, ruptured diaphragm, calculus, or obstruction of the urethra or ureters, bladder disturbances, pregnancy, azoturia, pyemia, chemical or vegetable poison, hepatic ailments, peritonitis and enteritis, hernia, anemia, etc.

Many of the aforementioned diseases—strangles, equine pleuro-pneumonia, pyemia, equine pernicious anemia (swamp fever), influenza, purpura hemorrhagica, tetanus and other infective maladies—manifest abdominal pain usually of secondary character and comprise a class which it seems unnecessary to discuss further beyond emphasizing that the pain is usually coincident with an actual enteralgia, reasonably inferring that complications exist, often of serious nature and indicative of disturbances having their origin in intestinal or circulatory obstruction, intestinal catarrh or inflammation through extension or intoxication, or again in nervous irritability and exhaustion. Prognostications upon these complications or manifestations of pain must be largely determined by the severity of the attack, the degree of impairment of the nervous system and the organism as a whole.

Laryngeal, pharyngeal or esophageal stenosis or obstruction, pregnancy, retained placenta and hernia are unlikely to be confused with colic and may be quickly disposed of. The careful practitioner after securing a complete history of any of these cases will observe in the multiplicity of idiopathic or pathognomonic symptoms adequate means for their differentiation from true colic and from one another.

Colicky Pains From Poisoning

Grouping next the various poisonings by irritants—pathologic conditions produced directly by irritant inorganic and organic preparations, of the latter more particularly the aliphatic and cyclic compounds which include certain of the ammonia derivatives, as amids, alkaloids, ptomains, and toxins, we observe that as far as their action upon the digestive tract

*Read at the Annual Veterinary Conference, Ithaca, N. Y., Jan., 1912.

is concerned, they produce lesions and symptoms allied or identical to gastro-enteritis; hence we will include them and for the moment consider them jointly with gastro-enteritis, enteritis and peritonitis as it becomes necessary to present material sufficiently competent to separate them collectively or individually from the condition we purpose to interpret as true colic. Of course we acknowledge that it is only through broad generalization that we can include the multiplicity of morbid conditions arising from these causes into a summary of one or even two types of disease. Such liberties are taken through assuming that you are aware that poisoning exhibits certain characteristics aside from those of disturbance of the intestinal or gastric apparatus; these symptoms, naturally, do not concern us at this time beyond the knowledge that they furnish means of differentiating these forms of enteric disturbance from true colic.

Differentiation From Enteritis and Peritonitis

In enteritis the pains are symptomatic, continuous, the pulse is not squirty as with many colics, but quickened, small and so faintly perceptible, because of the systemic shock and coincident vasomotor disturbance, as to be distinguished with difficulty. The temperature is elevated considerably above that usually produced as a result of the violent exertions of genuine colic; there is injection of the conjunctivæ which has the hue of raw beefsteak; a prostration altogether too profound and of too rapid onset for ordinary colic but such as might be mistaken only for that colic accompanying rupture or strangulation of a vital organ. In prostration from enteritis however there is lacking that peculiar period of anxiety and quietness which accompanies rupture of a vital organ. The pains are intermittently constant; the movements of an animal are more considerate, and do not manifest careless tumbling about, but constantly express soreness.

Peritonitis is even more difficult than enteritis to separate from true colic. The somewhat wiry though small and increased pulse is an aid to its differentiation as is also the restlessness, and the manifestations of sensitiveness of the abdomen which are more intensive than in enteritis, rather approaching true colic. Absolute differentiation of peritonitis from true colic is not always possible during life and especially is this the case, during the earlier periods of the attack.

Nothing is more common than for the practitioner to be called upon to attend a horse described as having "kidney trouble" or "trouble with his water." This conclusion, indeed confusion, of the untrained observer is quite natural because of the frequency with which the suffering animal assumes an attitude indicative of a desire to micturate; rarely voiding any urine, the action being due usually to an irritation of the bladder from bowel pressure, or because the stretching gives temporary ease. The wily practitioner will not be misguided by the "home-made" diagnosis, but will through his trained manipulations, observations and a historical resumé exercise painstaking efforts and thoroughness to refute or affirm the opinions expressed, remembering throughout the examination of the patient the possibility of the absence of certain important symptoms that are masked consequent upon previous administration of medicines given by the owner in a usually misguided effort to produce a cure.

Differentiation From Disturbances of the Urinary and the Hepatic Systems

For distinguishing those false colics attributed rightly to troubles within the urinary system, viz: acute nephritis, calculi of ureters, urethra or bladder disturbances, recourse must be had to the evidence collected through manual exploration through the rectum, which in severe or uncertain colics is never omitted by the painstaking diagnostician; furthermore, catheterization will often uncover a hidden diagnosis. During the manipulative work one must not fail to take cognizance of the value of certain features as accumulative evidence; I refer especially to a degree of sensitiveness of the kidneys or bladder, evidenced by flinching on pressure; the amount of urine within the bladder considered jointly with history of manner of

voiding, whether free or limited micturition or constant straining but suppression; information gained through locating foreign substances that may impede one or both of the ureters, the urethra or lie in the bladder, likewise a history of periodicity, the passing of blood-discolored urine, fecal movements and chemical or microscopical examination of the fluid passed.

Disturbances of the liver in the horse have been given little heed in veterinary medicine possibly on account of the indefinite character of the symptoms and because even the trained observer finds it difficult to make a clear and entirely satisfactory differentiation between the various functional and organic hepatic troubles. There are, however, certain signs, in protracted illness, that point to probable hepatic derangement, viz: extreme depression, pronounced immobility, slight periodic uneasiness, elevation of temperature, possibly jaundice and, in cases of hepatic abscess, increased phagocytosis as determined by a blood count.

Differentiation From Pectoral Ailments

Pleurisy is another condition that is altogether too frequently overlooked by writers who attempt to differentiate true and false colic. The practitioner, who casts his lot where the business of importing and selling "green horses" assumes any magnitude, soon has occasion to realize the great superficial similarity between equine restlessness caused by actual colic and that consequent upon the early beginnings of pleurisy; indeed, one observes as allied symptoms the restlessness, tucked up abdomen, pawing, looking at flank, and anxiety and a mistaken diagnosis is frequently made. Many times in my career as a practitioner have horses been sent to my hospital preceded by phone message or relinquished to our care by the statement the animal "has a slight colic; as soon as it is over let us know and we will send for him." A look at the animal and compilation of the history obtainable prompts a general examination rather than one confined solely to the abdomen, and as a result certain symptoms are discovered that when considered in conjunction with the history furnish diagnosis of this type of false colic. The differentiating symptoms of pleurisy are a characteristic wiry pulse; possibly a precursory chill; elevated temperature, in these early stages usually considerably above normal; a tucked up abdomen with the characteristic pleuritic ridge extending from the ends of the false ribs to the flank; abnormal thoracic auscultation sounds and painful expressions upon forced movement, or upon costal percussion, all clearly demonstrating, after systematic study of the case, that there is actually no intimate similarity to true colic but emphasizing the value of never allowing an opinion to become fixed until a thorough investigation of all details has been completed; a positive diagnosis earlier will many times lead to embarassment.

Differentiation From Azoturia

Let us now turn to azoturia as the one remaining disease having symptoms allied to true colic to which I wish at this time to call your attention. Hemoglobinemia is typically distinctive as the disease progresses to greater severity or duration, and after the paresis of the crural muscles appears, and the gluteal group becomes rigid and enlarged or if other groups are affected after they become similarly involved. A differentiation may also be made through the discovery of the typical high-colored urine; absence of pain and return of appetite, together with the history of high feeding, a short rest, exercise and sudden onset which is so consistently diagnostic. The primary expressions, however, are conflicting in many instances particularly in those cases seen during the initiatory pain or muscular spasm, when the anxious and excited animal sweats profusely, breathes excitedly, becomes restless, lies down, rolls, rises, or if unable to get up flounders heavily from place to place or side to side with accompanying convulsive movements, quickened pulse and peristalsis apparently suppressed through involvement of the sympathetic nervous system. It is therefore evident that a careless examination may easily lead to error that would not be made by the painstaking diagnostician.

CONSIDERATION OF TRUE COLICS

In leaving the subject of false colics at this point, of course it is admitted that greater completeness would be accomplished were time permitted to consider several other maladies with manifestations conflicting in part. Fearing, however, to weary you with unnecessary, though not wholly irrelevant detail, we may pass them over by simply suggesting the possibility of error from iliac or femoral thrombosis, cerebral derangement, foot trouble or from open synovial sacs and from rupture of the diaphragm.

We have now to consider true colics. As altered function of the stomach either independently or jointly with the bowels may occasion pains akin or identical to colic, I am prompted to give a broader interpretation to the word than inferred by enteralgia and include in this discussion certain gastric disturbances quite intimately associated with colics of the soliped.

It would appear to be impossible to intelligently diagnose colic if one expected in all instances to discover each and every symptom cited by various authors; indeed, there is much irregularity among the varieties of colic in the manner of their expression. Some symptoms prominent in one instance are entirely absent in another. Right here is emphasized the value of adopting a methodical system of examination, and the importance of differentiation, for naturally lucid understanding of the nature of the painful condition will very materially aid in lessening mortality where the accepted death rate is seemingly excessive.

To handle more intelligently the work at hand, we will group, as is customary with writers upon veterinary medicine, the several varieties of true colic which it is our purpose to consider. The classification that appeals most to the writer is a modification of those adopted in Hayes' translation of Friedberger and Fröhner's "Veterinary Pathology" and by Reeks in his excellent work upon "Colics of the Horse." Without attempting to adhere absolutely to the details in either instance but acknowledging the basis mentioned for the classification we present the following groups, viz: Colic due to engorgement, colic due to obstruction, gaseous colic, spasmodic colic and verminous colic.

Engorgement Colics

We will first consider engorged stomach, called also stomach staggers, gastric impaction or vertigo. There is usually a history of gluttony; possibly the horse has slipped his halter or gained freedom through an open stable or stall door or from a pasture enclosure or otherwise and thus had access to some especially palatable growing food or the grain bin.

Having eaten to over-indulgence the animal appears especially dull, full bodied and exhibiting every evidence of reflex brain pressure, leans heavily against the wall of the stall or rests the head upon the edge of the manger. The pains are slow to set in, mild and gradually increase in their intensity until they become a steady grind but like all colics of this group are never excruciating unless gaseous complications develop.

Overloading of the small intestines presents a line of symptoms not unlike those observed in certain forms of impaction or obstruction of the floating colon, and it is often impossible to determine with certainty which condition actually exists until after a careful and intelligent rectal examination has given basis for differentiation. In the beginning of cases of impaction of the small intestines the discomfort is protracted, persistent and, though the pains are mild, intermittent spells of greater uneasiness are often observed. The patient seeks recumbency for extended intervals; diarrhea is frequently observed, the movements being foul-smelling and usually preceded by pain. A better appetite is observed, during the early beginning of this than with most other colics, and there is an almost diagnostic inclination to move backward as if endeavoring to get free from the gradually increasing pressure. Prompt diagnosis has much to do with lessening the possibility of a grave termination through the development of enteritis or bowel rupture.

There yet remains two very distinct portions of the intestinal viscera to be con-

sidered before leaving the subject of colics due to overloading—the cecum and large or folded colon. Experience has led me to believe that disturbances of the former are exceedingly difficult if indeed they are not impossible to clearly differentiate from trouble involving the folded colon, unless at times distinguishable through rectal exploration. In spite of this admission I believe it is quite within our rights to suggest that the cecum is susceptible to disturbances allied to those occurring in the colon and though painstaking post-mortem examinations have failed to reveal cecal impactions to an extent of overloading* I have, on the other hand, found rupture of that viscera presumably as a result of fecal stasis or of gaseous accumulation.

Considering jointly possible impaction of the cecum and engorgement of the folded colon from an abnormal accumulation of ingesta, we observe, together with the general symptoms of colic, manifest by mild periodic, colicky pains, a fullness of the abdomen, bracing of the hind parts heavily against a convenient wall, couching walk and hesitancy in lying down, diminished peristaltic sounds and on rectal exploration a displacement of the pelvic flexure of the colon, which in these cases lies somewhat to the left of the rectum having presumably as a result of its gravid state become moved from the normal position which is somewhat more anterior and superior. The history of enforced idleness and free feeding may quite frequently be competently applied to the general summary of etiology and symptomatology of engorgement of the large intestines.

Obstruction Colics

Colics that it is desired to classify under this heading are grouped by Reeks under "acute intestinal obstruction" in contradistinction to engorgement colic already considered, which he styles "sub-acute obstruction." Experience amply demonstrates that the etiologic factors contributory to the development of these kinds of colicky pains are multiple and, moreover, that they may in many instances, at least, be primarily attributed to overeating. Among the disturbances belonging to this group we include colics due to foreign substances, growths, abscesses, displacement, volvulus, intussusception or invagination, stricture, paralysis and obstruction from accumulated ingesta in the floating colon.

Owing to the tendency of the coarser particles of the food to accumulate anterior to the seat of obstruction these colics are in a manner, at least, allied to those of the engorgement group but are, however, distinguished by their acuteness contrasted with the slow grinding pains of engorgement.

Some of these conditions are rare, not readily discernable unless through rectal exploration, but apparently capable in each instance of altering the symptoms to some extent depending upon the character of ingesta and consistency of the visceral contents. Little, if any, attempt has thus far been made to clearly distinguish one form of obstruction colic from another.

Foreign substances, including calculi, hairballs, sand, gravel or other extraneous and indigestible materials, growths in the form of tumors or abscesses seldom give rise to signs having any definite diagnostic value and oftentimes it is only through post-mortem examination, perhaps following death from some other cause, that we discover the actual nature of a condition that has been conducive to periodic attacks of colic. At such a time a review of the case furnishes sufficient information to substantiate the belief that intestinal trouble has existed for a considerable period; the historical resumé of such a case shows that the horse has not been, in most instances, at least, an easy keeper, has inclined toward loss of flesh under the least provocation; has been subject to periodic attacks of colic that have been as spontaneous in their disappearance as unaccountable in origin; straining intervals, with periods of constipation are not infrequently followed by diarrhea.

Should an abscess develop well toward the rectum, switching and restlessness of the tail and general uneasiness are frequent especially when the lower bowel is impacted anterior to the obstruction. I well recollect

*Autopsy records of such impaction have been published in VETERINARY MEDICINE.—EDITOR.

one case of abscess formation in particular that came to my observation and that had its origin as a result of mal address in which the injury to the rectal mucous membrane was associated with symptoms just detailed and which invariably ceased after removal of the crowding fecal collections.

Intestinal paralysis, particularly when involving the lower bowel, has similar symptoms, associated with a straddling attitude, elevated tail and dropping, at frequent and irregular intervals of scattered particles of alvine material.

Colics of displacement have their origin more especially through escape of a portion of the bowel following diaphragmatic or mesenteric rupture, in inguinal or scrotal hernia and also from volvulus, the latter constituting either a simple or multiple torsion, twisting or knotting of one portion of the bowel upon its mesenteric axis or around the loop of another portion; either condition prompted through irregular peristalsis and varying weight of the contents of adjacent regions of the tract. Volvulus can occur in any part of the tract, but more constantly in the ileum of the small intestines, the double or floating colon.

These displacements may, under certain influences, be differentiated one from another by intelligent rectal or scrotal examination. Collectively they are characterized primarily by intermittent, sharp spasmodic pains that increase in duration and intensity, causing ultimately the most violent demonstrations, with entire disregard to self-inflicted injury. The animal moves about with a head-shaking, swaggering, straddling gait; when standing, inclines to move backward; has an anxious look; a weak pulse and progresses rapidly toward collapse, with relapse of pain just prior to death which finally results from shock, intestinal or mesenteric strangulation, internal hemorrhage, peritonitis or enteritis.

Intussusception is another form of obstruction colic characterized by violent and excruciating pain; it is also called invagination or indigitation and probably occurs with greater frequency than is popularly imagined. Four forms of this classification are listed among writers upon intussusception, viz: first, a telescoping of one portion of the small intestine into another, ileal; second, passage of the ileum, together with the ileocecal valve, into the cecum, ileocecal; third, passage of a portion of the large intestine into itself, colic; and fourth, passage of ileum into opening of colon, ileo colic.

Here the symptoms are closely allied to those detailed for intestinal displacement but with a somewhat longer duration; violent straining, often associated with the passage of blood stained particles of fecal matter. The ultimate strangulation is less sudden, while the period of ease more protracted prior to the excitement premonitory to final collapse. In those cases of favorable termination there may eventually be discovered in the alvine discharges the cylindrical portion of the tract that has become necrotic and sloughed off simultaneously with the new union between the opposing peritoneal surfaces at the anterior circumference of the prolapsed portion.

During my references to overloading of the small intestines the remark was made that it "presents a line of symptoms not unlike those observed with obstruction of the floating colon" and "careful rectal examination gives basis for differentiation." This must be borne in mind now that we are to consider obstruction of the small colon which is one of the common and most dangerous of the prolonged colics, often extending uninterruptedly for twenty-four to thirty hours. The pains are continuous, of considerable intensity and accompanied by peculiar stretching forward of the front limbs and backward on the toes of the hind feet; also violent straining either during recumbency or when standing. There is a tendency for gas to collect anterior to the stoppage; a frequent passing of small particles of fecal matter and the gas is expelled in a rather, characteristic snapping-like manner in contradistinction to the prolonged blowing of ordinary unobstructed flatulency.

Like in other forms of colic of this class, should the obstruction interrupt the visceral circulation sufficiently to produce strangulation, there occurs a period of anxiety free from pain, that just prior to death, is interrupted by tremors, cold

sweating and renewed pain. Rectal examination may aid in detecting this obstruction. This manipulation causes excessive pain, straining, a tendency to rise on the toes of the hind feet and the rectum gives to the hand a feeling of tightness.

Gaseous Colic

Referring now to that group which we have advisedly styled "gaseous colics," a knowledge of anatomy will readily afford opportunity to realize the liability of no less than five varieties and each subject to sequelæ of the gravest consequence, particularly rupture and suffocation. Three forms I wish to especially call to your attention are: (1) involving the stomach; (2) false gastric tympany, (3) true flatulent colic.

Gaseous distension of the stomach, if not the most serious, may rightly be classified among the disturbances of grave character, owing to its frequency and liability to terminate rapidly fatal. Here the practitioner is called upon to demonstrate his capabilities and in a vast majority of communities his reputation will be in direct ratio to his success in dealing with acute indigestion. Primarily this colic comes on suddenly, is associated with a history of a rapidly-eaten meal upon either an empty or a tired stomach and within the gastric organ is a mixture of undigested food and more or less rapidly accumulating gas.

Unless dulled by the indiscreet administration of anodynes, the patient exhibits a rather uniform line of symptoms, viz: sudden onset; tremors of flank and humeral muscles; profuse general perspiration, becoming patchy; with manifestations of extreme pain; couching walk; dog-sitting attitude and general fullness of abdomen. Brown-red nasal discharge and salivation, together with belchings of foul-smelling gas, later retching which at times constitutes an actual vomit; tossing of head and elevation of upper lip, exposing incisors; anxious look; dilated nostrils and a peculiar catchy, sobbing respiration induced through diaphragmatic pressure; peristalsis is diminished but continues and the use of the trocar and canula fails to relieve though some gas may escape. The gait becomes uncertain and following a period of the most excruciating pain the animal dies of suffocation, rupture of the stomach or nervous collapse, without that period of dullness characteristic of strangulation. When attempting to give liquids by the mouth note a tendency of patient to crowd forward when the head is elevated; likewise, note an apparent inability to swallow owing to the distension of the stomach.

False gastric tympany—gas accumulation involving more especially the diaphragmatic flexion of the great colon. As a result of pressure exerted upon the stomach and diaphragm an animal suffering with this complaint presents symptoms that are quite similar to the foregoing, hence the name "false gastric tympany." A differentiation is, however, quite possible. The gulping is odorless, the breathing labored but free from sobbing and above all the escape per rectum of abundance of gas and a tendency to greater comfort following enterocentesis.

Flatulent colic or the evolution of gas within the intestinal canal, not necessarily confined to any one particular locality, is usually characterized by rotundity of the abdomen, more especially at the flanks. Tinkling sounds replace the absent peristaltic murmurs; the pain is distressing but varying with tenseness of walls; breathing is labored and cyanosis ensues if not relieved. Flatus escapes from the anus in blasts in contradistinction to the previously described interrupted sounds accompanying obstruction. Rectal exploration, flank or intra-rectal tapping establishes the diagnosis if it is not otherwise determined through history and symptoms.

Spasmodic Colic

Long before any attempt was made to classify true colics; either through etiologic or pathologic means, practitioners of equine medicine recognized symptomatically two forms of intestinal pain, viz: flatulent and spasmodic. After having come to a more lucid understanding of the varieties of colic and though inclined to place less stress upon the distinction "spasmodic," we must yet admit the occurrence of large numbers of cases unassociated with either impaction,

obstruction or gas accumulation, and, moreover, that cannot be correctly attributed to intestinal parasites or mesenteric aneurism. These conditions are probably the result of temporary derangement of the sensory nerves producing irregular peristalsis through stimulation of certain areas of the unstriated muscular coats of the intestinal viscera, particularly within the small intestines.

The pains are sharp and diagnostically intermittent, alternating with periods of what seem to be perfect health; the abdomen has a tucked-up pleuritic look; peristalsis is augmented, causing abnormal intestinal sounds of metallic character; diarrhea often becomes an associated symptom and though spasmodic colic will not, as a rule, cause great concern, it may lead to ruptures, volvulus or intussusception, consequently it should be seriously regarded in those instances where pain-free intervals become shortened alternated with lengthening of periods of uneasiness of increasing severity.

Verminous Colic

This paper, did time permit, could even yet be amplified to greater completeness were I to include rupture of the stomach, bowel or diaphragm, aneurism colics and other especially applicable conditions, but having already carried my remarks beyond all conservatism, I must close with but the briefest reference to verminous colic resulting from an intestinal invasion of lumbricoids particularly, certain of the ascaridæ, oxyuridæ and strongylidæ. The pains in colics from these causes are usually recurrent, and mild unless associated with severe disturbance of the mucosa. As differentiating symptoms we may mention chronicity, emaciation and the discharge of ova and of mature parasites per rectum.

Treatment of Wounds*

By E. WALLIS HOARE, F. R. C. V. S., Cork, Ireland
Author of "Veterinary Therapeutics and Pharmacology"

EDITOR'S NOTE.—It will be of interest to the large number of American Veterinarians acquainted with Mr. Hoare's "Materia Medica and Pharmacology" to learn that, with the collaboration of more than a score of leading veterinarians of Great Britain, he has in preparation an encyclopedic work "A System of Veterinary Medicine" the first volume of which will be published in the near future.

FATE not having been so kind as to enable me to enter into the ranks of the specialists, I am prevented from presenting to you anything new or original, and I must eschew the assumption of special skill in connection with any subject, and simply appear in the role of the general practitioner, and as one who can not even claim to "know something about everything, and everything about something."

In selecting the "Treatment of Wounds" as a theme for discussion I venture to think it is one that may prove of interest to every practitioner; certainly there are many points in connection with it, which offer ample room for an interchange of opinions, ideas and experiences, the result of which is likely to prove useful in our daily work.

I freely confess that one of my reasons for choosing this subject is to ascertain as far as possible to what extent the principles of aseptic surgery can be applied to animals.

I am quite aware that in certain quarters it is held that aseptic surgery *can* be applied to animals, and that failures in this direction are to be attributed to want of care on the part of the practitioner or to prejudice.

But in drawing conclusions on matters of this kind, it is essential to possess a varied experience of surgery under condi-

*A paper read before the North Wales Veterinary Medical Association, March 26, by E. Wallis Hoare, F. R. C. V. S.

tions favorable and unfavorable, both in town and country, and one important point that I shall endeavor to demonstrate will be with reference to the effects of environment and certain unalterable conditions that exist in connection with the treatment of wounds in our patients.

Progress in Veterinary Surgery

I have also another object in view: many medical men and several of the laity hold the erroneous opinion that we do not take the trouble to practise aseptic surgery; we are constantly asked why wounds do not heal by first intention, and why we do not adopt this or that measure which proves so successful in the case of wounds in man. For remember, that owing to the spread of popular medical knowledge the "man in the street" now professes to know something about surgical technic. Horse owners, through reading various popular works on veterinary science pretend to know all about antiseptics, and the suggestions that are often made to us when treating wounds are grotesque in the extreme.

My remarks throughout this paper will be specially directed to demonstrate the fact that veterinary surgeons appreciate the importance of aseptic surgery, and endeavor to carry out its principles as far as circumstances will permit them to do so.

Let us first of all take a retrospective view of veterinary surgery as applied to the treatment of wounds. That marked progress has been made is a fact apparent to even the most pronounced pessimist. This advancement must be attributed to the discoveries of Lister, and although the researches of this eminent scientist were directed to the perfecting of human surgery, there is no doubt whatever, but that the application of his principles to veterinary surgery has been productive of results, which, if they cannot be described as brilliant, are at any rate most striking and eminently satisfactory. For, although abdominal surgery and the surgery of the joints are, so far as the horse is concerned, as yet in a state of infancy, every one will admit that canine surgery has advanced by leaps and bounds since the principles of Lister have been applied to it. And even in the case of the horse we can justly claim that marked advancement has occurred by attention to Listerian principles. Again a knowledge of the principles of wound infection has enabled us to prevent the occurrence of those fatal sequelæ of wounds, such as septicemia, pyemia, malignant edema, etc., which were so frequently met with in former days, following accidental and surgical wounds.

Two factors were instrumental in the erroneous treatment of wounds that existed in former days. One was the lack of knowledge concerning wound infection, nothing being known with reference to microorganisms or their effects. Another was the prevalent idea that heroic measures were essential to promote healing; hence the employment of "black oils" and similar concoctions, in sublime ignorance of the deleterious effects of irritants on wounds, and of the existence of natural means of recovery.

The researches of Lister may be said to have extended from 1865 to 1890, and it is recorded that even up to 1880 a number of eminent surgeons were incredulous as to the value of the antiseptic treatment. Hence it is not surprising to find that in veterinary surgery up to this period the Listerian principles were not universally adopted.

It may truthfully be said that, as antiseptic treatment progressed, from stage to stage, in human surgery, its value was recognized by veterinary surgeons, and its principles gradually adopted. The earlier attempts at antiseptic treatment would no doubt be considered crude in the present day.

The Work of Lister

We read in the *Lancet* that in 1865–66 "Compound fractures were treated by the local application of carbolic acid, the antiseptic was freely applied to the interior of the wounds in order to destroy the air-borne germs which had the property of causing putrefaction, the opening in the integuments was then covered with lint charged with carbolic acid, and protected by an external layer of thin sheet metal. . . . In opening abscesses, a piece of rag from

four to six inches square was dipped into a solution of one part of crystallized carbolic acid and four parts of boiled linseed oil, and then laid upon the skin where the incision was to be made. One edge of this rag being raised, the part was incised with a knife previously dipped in the oil, and the rag was instantly dropped upon the skin as an antiseptic curtain, beneath which the pus flowed out.

"For the subsequent dressings a kind of putty was made by mixing common whiting with the carbolized oil, and this, spread into a layer about six inches square, was laid over the incision."

From this simple and crude beginning evolved those principles which were ultimately destined to revolutionize surgery, and render their discoverer the greatest benefactor to mankind that has ever lived.

In 1867, carbolized shellac plaster was substituted for the putty and found more convenient, and during the same period ligatures of silk or catgut were introduced, the latter however did not assume their present form until 1881.

Even with the above primitive antiseptic measures, a marked improvement resulted in surgical work and Lister recorded that hospital gangrene, pyemia and erysipelas disappeared from his wards.

In 1869 the carbolic spray was introduced by Lister, who continued his researches, even in the face of opposition, and in 1870 recorded that for nine months in the Edinburgh Royal Infirmary he had not had a case of pyemia or hospital gangrene in his wards.

In 1875 gauze charged with carbolized resin took the place of the shellac plaster, and various methods of employing carbolized oil and drainage tubes were described in articles written by Lister for the *Lancet*. In these articles were also discussed the sterilization and use of sponges, and experimental proof was adduced that "the septic ferments were solid particles and not some kind of material in solution."

The use of boric acid as an antiseptic was also described. In 1879 improved methods of protective dressings were introduced, so as to prevent the carbolic acid in the external dressings from reaching the wound, once the latter had been rendered aseptic by the primary application of the antiseptic. This protective dressing was composed of oiled silk coated on both sides with specially thick copal varnish and afterwards covered with a layer of dextrin so as to insure its being moistened when dipped into a watery solution of carbolic acid.

In cases where patients showed special idiosyncrasies to carbolic acid, either salicylic jute or gauze charged with a mixture of one part of eucalyptus and three parts of gum dammar and paraffin, were employed.

In 1881 Lister delivered two addresses containing what seemed to be his first published reference to pathogenic bacteria as a distinct class of microorganisms; and in 1883 he demonstrated the success of wiring the patella, when antiseptic principles were employed.

In 1884 he drew attention to the uses of corrosive sublimate as a surgical dressing and in 1889 he pointed out that sal alembroth was untrustworthy as an antiseptic, and in the same year he introduced the double cyanide of mercury and zinc as a reliable agent with which to render gauze antiseptic, but pointed out that its germicidal efficacy or ability to destroy existing bacteria was inferior to its power of inhibiting bacterial growth, hence it was advised that the dressing should be moistened with a five percent solution of carbolic acid before being applied.

In 1890 Lister announced that he had abandoned the use of the carbolic spray three years previously, and that he had substituted a solution of corrosive sublimate for carbolic acid, having found the former less irritating and more efficient; he also pointed out that the double cyanide of mercury and zinc could be prepared in a perfectly definite manner, and although the new product contained twice as great a percentage of cyanide of mercury as was present in the substance originally used, it had no tendency to cause irritation.

In 1907 we find what may be regarded as the final utterance of Lister in a note occurring in Sir Hector Cameron's book "On the Evolution of Wound Treatment During the last Forty Years." In this

note "he advocated the use of the double cyanide of mercury and zinc, he preferred the use of sponges for the absorption of blood or other discharges from an operation wound, to any of the substitutes that were proposed, while for the purification and sterilization of such sponges, with an especial view to the destruction of both the sporeless micrococci and the spore-bearing tubercle bacilli, he perferred carbolic acid (1 to 20) to any other germicide. For purifying instruments, the hands of the operator and the skin of the patient he used a similar solution except in the case of the eyelids when a solution of corrosive sublimate being less irritating, was preferable."

In circumstances where it was impossible to exclude septic agencies such as in operations upon the mouth, etc., or in putrid sinuses or in certain compound fractures, iodoform might be dusted on the cut surfaces of a wound "after mopping with a solution of forty grains of chloride of zinc in one ounce of water." The usefulness of iodoform was, however, rather limited.

In the external dressing, gauze impregnated with the double cyanide of mercury and zinc was advised, and before being applied to the wound this gauze must be rendered damp with a solution of carbolic acid.

To parts where there was very little space between the wound and some source of septic contamination, the double cyanide powder mixed with sufficient of carbolic solution one to twenty, to form a cream might be applied with a camel's-hair brush. In some circumstances the cyanide powder might possibly be used as a first aid dressing by dusting it over wounds by means of a tin with a perforated top.

"As regards the changing of dressings, when there was a free discharge from a wound he preferred, as a rule, to remove the first dressing after a lapse of twenty-four hours, but a longer interval ought to be allowed after certain amputations."

I have thought fit to give the above abridged history of the evolution of antiseptic surgery, taken from the biography of the late Lord Lister that appeared in the *Lancet*. It will assist in the consideration of what would appear to be the two schools of surgery of the present, one termed the *Antiseptic*, the other the *Aseptic*; but, as will be seen later on, the differences between them are more imaginary than real, so far as results are concerned.

Terms Defined

As already remarked, during the course of Lister's career he had to submit to severe and often unjust criticism, but this is the fate of all those who attempt to leave the beaten track. One of his opponents pointed out in 1867 that Lister was not the first surgeon to use carbolic acid, but this was already admitted. It is also recorded that Sir Wm. Savory (who was President of the Royal College of Surgeons for five years in succession, and full Surgeon at Saint Bartholomew's Hospital from 1867 to 1891) at the meeting of the British Medical Association held at Cork in 1879, delivered the address in Surgery and spoke in attack or ridicule of the system of antiseptic surgery. I introduce this matter in order to show that surprise should not be expressed if examples of similar opposition existed amongst veterinary surgeons; that such did exist I have no doubt, but at present there are few practitioners who deny the benefits of Listerian principles.

In order to comprehend the principles of the modern treatment of wounds and to compare the *antiseptic* methods with those designated as *aseptic*, it is necessary to briefly consider the significance of certain terms that are employed in connection with the subject. Unfortunately it happens that the same term is occasionally applied in more senses than one, or has a different meaning attached to it by various authors.

The term *septic* was formerly applied to wounds of an offensive character, which were frequently associated with septicemia, pyemia, etc. But as it is recognized now, that the above conditions may arise from the action of pus-producing organisms, the term *septic* is generally applied to all suppurating wounds.

Recognizing however, that wounds may be offensive and distinctly unhealthy, without any evidences of the presence of pus, it is clear that *septic* can be applied to conditions depending on a variety of micro-

organisms. In many cases the septic condition of a wound depends on one pathogenic organism, but in almost every instance ordinary pyogenic organisms are present, associated with those characteristic of sepsis.

In practice, however, we are generally inclined to apply the term septic to a putrid condition of a wound, associated or not with the presence of pus. As a very large number of accidental wounds in the horse heal by "granulation," but not under aspetic conditions, suppuration to a varying extent is common, still the pus is not offensive, the wound tends to heal with ordinary care and we do not apply the term *septic* to it, although certainly it could not be described as aseptic. As I shall point out later on, a large number of accidental wounds in horses are already infected before the practitioner gets the chance of treating them.

Aseptic signifies the absence of sepsis, that is, the absence of microorganisms of any kind. The term is synonymous with *sterile* or *germ-free.*

Antiseptic is a term that is often loosely applied: literally it signifies anything opposed to sepsis, in a bacteriological sense it indicates an agent that *retards* or *prevents* the development of bacteria, irrespective of its power of destroying their vitality. But it is often erroneously applied as synonymous with *germicide,* whereas a large number of agents classed as antiseptics are *not* capable of destroying pathogenic bacteria.

Disinfectant is a term applied to an agent capable of *destroying* infective microorganisms, and so far as pathogenic bacteria are concerned it is synonymous with *germicide.* Therefore all disinfectants are *antiseptics,* but not all antiseptics are *disinfectants.*

Deodorant is a term applied to substances that are capable of destroying or removing offensive or unpleasant odors, but it does not follow that they possess disinfecting properties. Many disinfectants however, are also deodorants.

Two "Schools" of Surgery

It will now be necessary to devote a little attention to the significance of the terms *aseptic* and *antiseptic* surgery.

To such an extent has the subject been debated that two so-called "schools" have resulted, and even these are not in agreement as to the precise sense in which the term *aseptic* should be employed. There is in fact a decided antagonism between these "schools" as to the technic which is best calculated to bring about successful results, for be it remembered that both aim at the prevention of infection in wounds and thus endeavor to promote healing in the shortest time possible. Briefly speaking, the aseptic system aims at preventing the access of pathogenic bacteria to wounds, it embraces all the measures adopted to keep the wound aseptic, or free from the ill effects of septic organisms throughout its entire course. Antiseptics, except for sterilizing the patient's skin, the hands of the surgeon, or in the process of sterilizing ligatures, are rigidly excluded, and not permitted to come into contact with operation wounds. All the materials used, such as ligatures, sutures and dressings, contain no antiseptics, but are simply sterilized. The instruments are sterilized by boiling and are not placed in an antiseptic solution.

Of course, the *aseptic* method can only be applied to operation wounds made through unbroken skin into non-infected tissues. The disciples of the aseptic school term the methods in which antiseptics are employed, either in solutions or dressings, as *antiseptic* methods. Some even go further than this, for we find one surgeon, Mr. Burghard, stating, that the term "antiseptic," when applied to the treatment of wounds, "should be reserved for those measures designed to combat sepsis already present in a wound."

The "*antiseptic* school," however, claim that their methods are also aseptic although as a means of precaution they employ antiseptics in addition to the means for securing asepsis. Sir Watson Cheyne, one of the advocates for this method, states:

"Aseptic surgery is the method of treatment directed to the maintenance of an aseptic condition in the tissues of the wound presumably existing at the time of operation. . . . . But on the other hand, antiseptic surgery has to deal with tissues which have already been infected, with or

without a breach of the surface, and here the surgeon's efforts are directed to diminishing the effects of already existing sepsis, or it may be in a few cases even to eradicating it."

Mr. Lockwood, who steers a middle course, says in his work on "Aseptic Surgery," "Any method of wound treatment which aims at sterility will be called aseptic."

The "bone of contention" between these two systems would appear to be the question of the employment of antiseptics; those of the aseptic school holding that these agents by causing irritation interfere with the normal powers of resistance of the tissues, and thus retard healing. This weakening of the resisting power of the tissues may even enable microorganisms to enter and take effect, in cases where surgical cleanliness was neglected although antiseptics were employed.

Sir Watson Cheyne however, points out in the "Bradshaw Lecture on the Treatment of Wounds," (1908) that the Listerian principles in wound treatment include two important postulates:

1. Exclusion of bacteria especially of pathogenic organisms, as far as possible during and after an operation.

2. Avoidance of irritation of the surface of a wound, so as not to interfere with healing nor with the powers of the tissues, to prevent the growth of any bacteria which have entered.

This authority clearly explains that, by the Listerian system, every precaution is taken to prevent irritation from the antiseptics employed, and also states that, even with adherence to the strict principles of the so-called aseptic system, suppuration has occurred when operations were carried out in regions other than the peritoneum. He believes "that of late many surgeons have gone to extremes in the avoidance of antiseptic solutions," and that the aseptic system, so-called, is "*only carrying to an extreme the principle of avoiding irritation of wounds.*" He also shows that even the application of plain boiled water to the surface of a wound interferes with the integrity of leukocytes and other cells, for under the microscope they are found to rapidly swell up and become completely disintegrated. In summing up his criticism he states that "the pendulum has swung too far in the direction of the avoidance of antiseptics, and that the reasonable use of all the means at our disposal for securing asepticity of wounds will furnish more constant results." He also adds, "the chief point to which I take exception is the employment of dressings which do not contain an antiseptic in sufficient amount to render the discharges which flow through them unsuitable for the growth of bacteria. (In a dressing not containing an antiseptic although sterile, when it becomes soaked with discharge, the latter may remain sterile until it comes near the surface of the dressing, then bacteria will grow into and rapidly spread through it and reach the wound, unless the blood has in the meantime become so concentrated by drying that it is no longer a suitable cultivating medium.)

A second point is the absence of antiseptic solutions during the operation, in which hands, instruments, etc., may be washed from time to time to ensure continued asepsis. "The attempt to treat wounds without any antiseptics is a very unnecessary complication. In the first place it is ever so much more difficult to secure asepticity of a wound, under such circumstances, than if one takes advantage of antiseptics, and in the second place it requires a man who is especially skilled in bacteriological work, to bear in mind the various loop-holes which have to be guarded against in order to obtain a constant aseptic result. . . . . I confess that I can see no reason for this great dread of a drop of antiseptic material getting into a wound; I can only say that my own results and those of surgeons who use antiseptics judiciously are in every way as good as those obtained with the more elaborate aseptic precautions, in fact seeing that we are not troubled with sepsis or stitch abscess at all, I venture to assert that they are better, because they are more constant and dependable."

Rose and Carless, (Manual of Surgery), in contrasting aseptic and antiseptic surgery, state:

"It is only natural that we who have had the privilege of working with Lord Lister and have seen the excellent results following the intelligent use of antiseptics as mapped out above, should still cling to that line of practice which certainly can be carried out with more precision under all circumstances both in private and hospital, than the other plan, the objects of which may at any moment be defeated by some slight inadvertence or oversight. The *theory* of asepsis is no doubt perfect but its *practical application* is often difficult owing to the necessity of having sterilizers always at hand, a matter almost impossible in cases of emergency, in private practice."

Measures Attempted

I have deemed it advisable to quote the opinions of the above eminent surgeons on the subject of aseptic and antiseptic surgery, before proceeding to consider how far the principles can be applied in veterinary surgery. I shall endeavor to show that, although in the case of the dog it is possible to carry out perfect aseptic principles under proper surroundings, it is a far different matter when we come to deal with equine surgery. I suppose it will be generally admitted that in the treatment of wounds in horses there are certain important indications to be fulfilled.

(*To be concluded.*)

Federal Meat Inspection

By A. O. LUNDELL, Oklahoma City, Oklahoma
Inspector-in-Charge, Bureau of Animal Industry, Oklahoma City, Oklahoma

MEAT forms a larger part of the food of the people of this country than is the case with any other country except, possibly, Australia. Recent estimates have placed the total consumption of meats in the United States at fourteen billion pounds annually. It is calculated that meat constitutes about thirty percent of our total nutritive material and costs about thirty percent of the total. Meat animals are subject to many diseases which impair or destroy the wholesomeness of their meat as human food but the presence or effects of the disease are not always discernible in the dressed carcasses. A piece of meat may carry the germs of a dangerous disease without giving any indications of this fact to the consumer. To detect disease there must be an expert examination at the time of slaughter. Therefore, generally speaking, the object of meat inspection is to protect the people at a point where they are unable to protect themselves. A consumer being himself unable to determine whether or not the meat he buys is diseased demands that he be protected by the Government from the cupidity or ignorance or both of those from whom he buys.

The first federal meat inspection law in the United States was enacted for the purpose of overcoming restrictions upon our exported meat. This act, however, provided more particularly for an inspection which would determine the character and manner in which these products were packed and their condition at the time of shipment, and did not reach the more important end of determining whether or not the animals from which they came were diseased at the time of slaughter. The consequence was that foreign governments refused to recognize such inspection certificates as were issued thereunder as sufficient to warrant the removal of the prohibition which they had maintained. The attention of Congress was called to this inadequacy and the law of 1891 was passed. The regulations issued under this act provided for an examination, by veterinarians, or all animals slaughtered for export or interstate trade and the condemnation of animals found to be diseased. The examination was to be made both before and after slaughter. This act was strengthened by the act of 1895 but there were no further enlargements of the department's powers, until 1906, although the officials constantly recognized their limitations and attempted from time to time to secure legislative exactments that would remedy

the defects. Although neither the law of 1891 nor 1895 mentioned sanitation, the department in February, 1906, issued a radical rule demanding cleanliness in all parts of the establishment. Progress was being made on this line when the agitation of 1906 directed public attention to the inadequacy of the law on the subject and brought about an enactment of the law of June 30th, 1906. The so-called revelations can scarcely be said to have added anything to the department's knowledge, while such of the strictures which were exaggerated and incorrect were from the departments' thorough familiarity with the subject, easily refuted. The present meat inspection law in this country is as advanced a measure as the medical profession and sanitarians generally demand, and is perhaps the most stringent and far-reaching of existing laws on the subject. And the regulations provided by this law are based on the best and most recent scientific knowledge and judgment, and it is safe to say that no country has a more stringent meat inspection system or one which better safeguards the health of the consumer of meat food products.

The postmortem inspection begins with the careful examination of the lymphatic glands of the head and neck, these being common seats of tubercular infection. As the viscera are revealed, another inspector watches with practised eye for abnormalities carefully cutting into the lymphatic glands and manipulating the various parts in order that any obscure indication of disease may be discovered. When the inspector finds a diseased carcass, he attaches to it paper tags, serially numbered and marked "U. S. Retained." The carcass with the parts which have been separated, none of which is allowed to lose its identity, is now sent directly to a special place for final examination. Here the carcass is more leisurely and carefully inspected. If found to be healthy and fit for food, it is allowed to pass. When the examination confirms the suspicious indications of the first examination, the carcass is conspicuously marked "U. S. Condemned." and tanked (rendered inedible) in the presence of a Federal employee.

When the inspector has detected disease in a carcass and attached "retained" tags to it, he orders the butchers, before they proceed to another carcass, to cleanse their hands and immerse them in a disinfecting solution and sees that all implements, knives, etc., are cleaned and immersed in boiling water. Carcasses which are healthy and fit for food are marked "U. S. Inspected and Passed." This mark is necessary to procure the movement of meat from establishments having inspection. The products, after leaving the killing floors are subject to a reinspection from time to time in various departments in which they are prepared and those found to be unclean or to have undergone changes which render them unfit for food are condemned. The inspectors supervise the entire preparation and require absolute cleanliness. They see that no drug, chemicals, or coloring matters are used or no preservative except salt, sugar, vinegar, wood smoke, and saltpeter.

As a further safeguard the department has equipped and manned laboratories. Here with the microscope and reagents, is brought to the aid of the inspection service, the best effort of modern bacteriological and chemical science. Having seen that only wholesome meat is used and that every possible precaution is taken to have it clean, the inspectors go one step farther and insist that the package be properly and honestly labelled. It is something to know that your package is properly and honestly labelled. It is something also to know that you buy what you think you buy. The department lays down a broad rule that the label shall tell what is in the package and before a label can be used it must be first submitted and approved by the Chief of the Bureau of Animal Industry.

All the inspection for disease, both antemortem and postmortem, is done by veterinarians and their assistants. The veterinarians are graduates of recognized colleges and have been required to pass rigid civil service examinations. The assistants have also been certified by the United States Civil Service Commission. The meat inspectors who reinspect the meat in the various departments are men who have long and special training in the handling

of meats and who also have been required to pass civil service examinations. No inspector is allowed to pass final judgment on carcasses or parts until he has received a complete and thorough training in the service in addition to the education and experience previously acquired. It is with this group of men that the Government has built up and maintained an inspection service so comprehensive and complete that it leaves little additional in this line to be desired.

While the Federal inspection is limited to establishments or persons doing an interstate or export business, the Bureau has opportunities of learning the condition of other places. It must be borne in mind that nearly half of the meat supply of the country does not come under Federal inspection and that only a very small part of this receives an efficient state or municipal inspection. Some of the most insanitary degrading and revolting conditions have been found at small local abattoirs which are not and cannot be reached by Federal inspection. It is natural that suspicious and diseased live stock which might be condemned if sent to an establishment having Federal inspection, finds its way to the uninspected places and as the Federal law prohibits the interstate shipment of uninspected meat, it follows that the product of the numerous small slaughter-houses is sold and consumed within the state where they are located. There is great need, therefore, for the states and cities to provide an adequate local inspection, which will protect their people against these local establishments. In cities and states where there is inspection, it usually consists of either a superficial ante-mortem inspection or simply an examination of the meat as exposed for sale in the markets and stores. In the latter case such an inspection is almost worthless. While it may result in the condemnation of a certain amount of unwholesome and tainted meat, the average purchaser is able to detect and avoid such meat for himself. In the former it is an error to suppose that a superficial ante-mortem inspection insures the people against eating diseased meat and is an insult to the sanitarians and scientists who have demonstrated beyond a reasonable doubt that the only kind of an inspection that will protect the consumers against eating meat of diseased animals, can be done only by having a sufficient number of competent veterinarians to inspect the carcasses at the time of slaughter. Without such local inspection, the consumer can be assured of wholesome meat only by purchasing no meat except that bearing the Government inspection mark. Commenting on this, the commissioner of the Oklahoma state board of health says, "Since the time has come when the Government inspection mark is accepted as a guarantee of the purity of the meat, the critical consumer cannot be blamed when he refuses to accept the supply from a local slaughter house which has no inspection.

After diseased animals are turned away from the large packing houses as a result of Government inspection what assurance has the people under the present system in this state that these same animals are not taken to the small private slaughter houses and prepared for the meat counter." The commissioner does not err in this statement but supports it by saying, "The advantages of the United States Government inspection system has been brought home to the people of Oklahoma by disclosures made by the State Board of Health during the past summer.

Several instances of live stock being turned back from the large packing plants in Oklahoma City because of their diseased condition and later finding their way into the hands of local butchers." While this condition has been witnessed by the writer personally, I do not feel that the butcher is altogether to blame. Under the present system of state inspection a certificate of health is issued to the butcher following the superficial ante mortem inspection conducted by laymen who in one instance testified that his department did not require that its inspectors have any knowledge of diseases of animals, as a qualification for an inspector.

The first meat inspection system in this country was inaugurated in Chicago in 1865 when two laymen were stationed at gates and inspected all animals as they were

driven from the railroad to the packers' pens. The inspection system at Chicago in 1865 compares favorably with the system in Oklahoma at the present time.

If local butchers in cities and towns would concentrate their business and form one large establishment where there are now many small ones, the tendency would be to reduce the cost of slaughtering and manufacturing meat food products, it would enable them to utilize the by-products which they are losing at the present time, and which amount to fifteen percent of the total value of the carcass. If operating under an efficient system of inspection the character of the local meat supply would gain in reputation and local meat could enter into competition with those supplied by the large packers. Unless there is a competition of this kind, the tendency of the trade at present is that the large packers will control the supply, for the American people will insist on being supplied with meat which has received a careful inspection by inspectors in whom they have confidence.

Some Observations On Our Ethics

By J. T. SEELY, M. D. C., Seattle, Washington
Assistant State Veterinarian, Seattle, Washington

PREHISTORIC man was physically strong but intellectually deficient; he was of a lower order of intelligence, builded for the present with no thought of the future.

The modern veterinarian has developed as greatly from the horse doctor of fifty years ago, as the average man has advanced from prehistoric man of ages ago, which demonstrates with what rapidity our profession has come to the front in a short period of time.

We have evened up for our latent period our dormant state, and are today more than keeping up with the whirlwind pace of the present age; conditions, environments and demand, being given due credit for their part in veterinary history.

Co-operation, ethics and good-fellowship spell the secret of the attitude of the public toward the veterinarian of today.

Petty bickerings, imaginary troubles hashed and rehashed and then scattered broadcast harm the innocent as well as the guilty, in the eyes of the public and are a choice morsel for our enemies of which we necessarily have a few, being as we are, servants of the public.

Cooperation is a paramount issue with us, and is, and will continue to be, one of the greatest adjuncts to the veterinary profession of any one thing that can be named.

Ethics, at our alma maters, should receive greater consideration so that a class turned loose to the mercies of the world, will not pummel each other like a litter of pups clamoring for their dinner.

We have various state and city associations with clauses on ethics, with liberal ideas of live and let live, where fraternal feelings exist temporarily at least, yet are apparently forgotten the minute the last toasts are proposed.

Are we all hypocrites, or just a small percent, or are we only displaying human nature; and is human nature in this case brotherly feelings with a string attached to be pulled back immediately we have drifted to our various haunts?

Many of the masters of our profession, men who occupy niches in the halls of fame, men who should be criterions in our profession and examples for the young practitioners, are equally as great offenders against their brothers as the smaller fry; when jealousy is rampant and back-biting at a premium, when brothers bicker and parley over mere nothings, than I ask, how can we expect to be regarded by the public at large with the esteem to which we are entitled, for, "as we make our bed so shall we lie."

We who practice for a living, who are called upon to deal with a public largely skeptical to the extreme, get our little "Hell," parceled out to us day by day; is it not enough? No, it seems that we must

add a little more by stirring up concoctions that are nauseous, among ourselves.

Arguments are often fertile of results but criticism of our fellows based upon personalities begets little.

We have a national body, the A. V. M. A., which is rapidly growing and becoming surprisingly strong, having for feeders various state and city associations; I say feeders for the reason that local organizations reach the individual veterinarian to better advantage and as a result of association with their brothers, they become interested and active, later to become members of the national body, acknowledging the results which can be attained and the good derived by cooperation.

Our profession, as is true of all others, has its laggards and drones, its pessimistic fellows with their perpetual grouch, who remain outside an association condemning honest efforts, but not adverse to accepting any good to be derived by the efforts of their more open-hearted and liberal-minded brothers.

While the colleges are raising the standard of matriculation as to intelligence, it might be well to look to the other side of the question, and be a little more particular as to the moral soundness of the applicants as well; not to the extent of being narrow-minded but sufficiently to guard against being the dumping ground for characters who should never have been allowed to matriculate; raising the standard of matriculation as to intelligence will necessarily eliminate this to a certain degree, for when one has a basic education sufficient to matriculate under the new conditions, he should have a sense of moral pride which would make him a worthy attribute to the veterinary profession.

Once we begin to recruit the ranks with this kind of men, just so soon will cooperation among us become as it should, a growing issue from whence a benefit will be derived by all concerned, which includes the general public, as well as the veterinarian. Every man who has given his earnest and conscientious effort to the upbuilding of the veterinary profession, should be given the credit which he justly deserves, and to which all fair-minded men will agree.

We stand arrayed as a body of men, equipped with a knowledge which enables us to minister to and alleviate pain and suffering of dumb animals, many of which have done their part unflinchingly in the upbuilding of this hemisphere in its march of progress.

We have devoted time, energy and money to acquire a scientific understanding of a vocation that ranks high in importance, and of which we may well be proud.

The veterinarian has a sphere of usefulness before him, of which we are cognizant, and which calls for men who are clean, upright and honorable, and men of stability; the public is recognizing in the veterinarian of today, a man, who as to ability and manly traits was a few days ago a stranger, the recognition is a pleasant one, for we are making ourselves known as veterinarians and honored citizens; we are coming into our own and as we have cooperation among ourselves, and all work for a greater and common good, the impression of the horse doctor, with his rope and drenching bottle, a calling ridiculed as it was a few years ago and burlesqued by the quack, will be relegated to the dark ages and a new era will take its place.

Let us all get together, boost, pull, and push, and with our shoulders to the wheel, make ourselves felt still more individually and collectively, then go down the line as "boosters" for the modern veterinarian and his profession.

VETERINARY LOCATIONS FURNISHED IN ANY of the 48 states desired. F. V. Kniest, R. P., Omaha, Nebr.

NOTICE—THE CLASSIFIED ADVERTISEMENT IN the April issue, stating that there are but two veterinarians in Canton is false and misleading in every particular. There are six registered veterinarians here, three of us from one school. C. E. Fidler, M. D. C., Canton, Ill.

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(Continued on page 18, Advertising Section.)

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Correction—Appeal—Declaration

THROUGH an error, which we very much regret, no credit was given the Kentucky State Veterinary Association for the article on "Investigations of Infectious Abortion" by Professor E. S. Good of the Kentucky Experiment Station, published as a leader last month.

Due acknowledgment of the source of the article is now made and apologies for this omission offered.

While acknowledging our own fault in this we call attention to the very much graver one, committed with annoying frequency by some contributors. We refer to the sending of duplicate copies of articles to different publishers. No article can appear as an *original* communication in more than one journal, and after its initial appearance credit should be given by the magazine subsequently using it to the publication which originally contained it, not to the writer. Rarely does any publisher care to do more than abstract articles which have already been published.

It is exceedingly embarrassing for an editor to have his attention called to the fact that an article appearing in his publication as an "original" communication had already been published without his knowledge, in some other journal. Frequently an article is set up, possibly half-tones made, and then it is discovered that the article has appeared elsewhere. Usually under such circumstances the article is discarded and the cost of setting it up and making half-tones is an entire loss; often not an insignificant loss either.

The number of good articles written on subjects of interest to veterinarians is so ample that there is no necessity for duplicate publication of any. No writer is compelled to send his articles to any journal. His is the right to select his medium of publication, but he has not the right to send duplicate copies of articles to various journals without informing each of this action. It is a serious breach of the ethics of publishing for an author to do otherwise.

Many do not realize this and we are writing this article without the slightest reflection on or reference to anything that has gone before, but solely to suggest your future policy, at least we hope so far as this journal is concerned.

And again, to secretaries of the various veterinary associations let us say, as we have said so often before, we never publish the official proceedings of *any* association except by special arrangement. Our space is too valuable and our circulation too wide for publication of matters of purely local interest. We are more than glad to have you send us copies of the proceedings of your meetings with the understanding, that only such parts will be excerpted and published as are of general interest. This will be done promptly and will accomplish all for your association in the way of publicity that can be accomplished, since no one not a member of the association ever reads through the whole proceedings of a meeting, nine-tenths of which is not of the slightest interest to outsiders.

Please keep in mind that we have a larger circulation in every single state than the membership of the association in that state, and that we have more subscribers in foreign countries than there are members in any state veterinary association, that every one of these readers is justly entitled to interesting and valuable material on every page of VETERINARY MEDICINE, and that they cannot be interested in more than minor parts of the doings of any particular association. A journal with a purely local circulation, or one in need of "space fillers," can publish a complete report of association meetings, even showing who made a motion to extend to the janitor a vote of thanks for cleaning up the hall after the meeting, and by whom the motion was seconded, likewise the vote on this motion and other matters equally unimportant to the profession in general, but we cannot. We reject more articles each month than we publish but when we do publish an article it is evidence in itself that in our opinion the article has real merit, and the author has the satisfaction of knowing a selection has been exercised and not the feeling that the publication means nothing since his article would have been published whether meritorious or otherwise.

Please cooperate with us in this and we shall all benefit and none of us lose thereby.

"THE CALIFORNIA WAY"
Dr. John L. Tyler, Pomona, California, ready to start on a 40-mile call. The Doctor's bungaloo and his hospital in the background

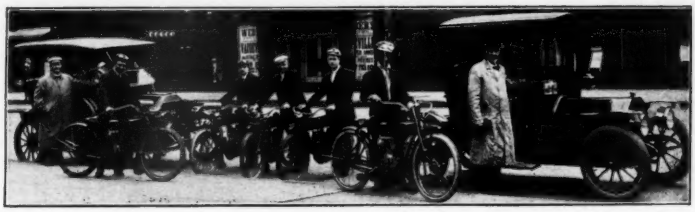
MOTOR CARS AND VETERINARY PRACTICE

According to *Commercial Vehicle* there are in use in the United States 30,000 motor trucks, of which 4,000 are in New York City and 1,800 in Chicago. Counting that these motor trucks displace an average of six horses each, the whole number replaces nearly 200,000 horses of a type (draft and light delivery) that contributes much

to veterinary practice. That but for auto-trucks the amount of veterinary practice with horses in cities would be greater cannot be denied.

The fact, which is indisputable, that there are more veterinarians in the cities now than ever before, and that the average veterinary practice in cities is larger than at any previous time, is due to the extension of practice in lines not heretofore given due consideration. Obviously there is a limit to this extension of work in dog-practice, fowl-practice, dairy-inspection, sanitary inspection, quarantine and other state or municipal work; while there is scarcely a limit to the displacement of city horses and the curtailment of city practice among horses by motor vehicles, short of annihilation. Unmistakably this is a problem to be "viewed with alarm" by the profession. Not that such "viewing" will alter conditions or hinder the increasing popularity of self-propelled vehicles, nor that we would hinder this if we could, for the change is progress and improvement, and as progressive men we welcome it; but this continual lessening of city practice with the horse must be taken into consideration in plans and calculations for future action.

To veterinarians in the small towns, engaged almost exclusively in country practice, the automobile bears a different relation. Here it has been a great advantage; enabling the practitioner by its use to make more and longer calls with greater ease and comfort. While motor vehicles are much used on the farm they have not appreciably affected the horse population in even the most prosperous rural communities.



Wright & Merillat's "Flying Squadron," 1827 Wabash Avenue. Chicago
From left to right the veterinarians shown are: Dr. L. A. Merillat, Dr. T. B. Crowe, Dr. C. O. Kroener, Dr. E. B. Thomas, Dr. L. Barret, Dr. W. C. Gaber, and Dr. J. M. Wright. Drs. Wright and Merillat would gladly discontinue the use of motor-vehicles if their clients would do likewise; but while the "other fellow" uses autos they want whatever of advantage this means of transportation possesses.

Up-to-the-minute in canine practice in Kansas City

When automobiles first began to be used by veterinarians there was much criticism of this means of locomotion, many inclining to the belief that it was bad taste, business suicide, and what-not for a veterinarian to set before his clients an example of discarding, in part at least, the horse upon whose ailments so large a portion of his income depended. But this attitude on the part of the profession has passed and, probably in no other profession or class, does a larger percentage of the individuals use automobiles than among veterinarians.

A little more than two years ago the writer made some effort to ascertain the number of our subscribers who were using automobiles in their practice. The investigation was not carried far enough to

furnish definite data but the evidence was conclusive that more than half of them use autos in their practice which means that at least 4000 automobiles are in use by that portion of the profession reading this journal and the number is increasing with each succeeding season.

THE SENATE GETS THE ARMY VETERINARY BILL

"Nail the members of the Military Committee of the Senate next"—reads the bulletin just now sent out by the leaders in Washington who are pressing, with unswerving effort and unfaltering devotion, the passage of the Army Veterinary Bill.

The greatest difficulty, to the passage of this bill, to be met and overcome—for overcome it must be, is no longer in the Lower House. Through efforts of the committee in Washington and the Profession everywhere the success of the veterinary bill is practically settled there. The scene of battle is now transferred from the House of Representatives to the staid, conventional Senate. There the veterinary profession of America, in arms against a half-century of unfair treatment of our confrerès in military service, must direct its blows. When the bill has passed the House of Representatives it goes to the Senate Military Committee. We must bring to bear upon the members of this committee all the influence of favoring this bill which we are capable; must beseech and besiege these senators with an unceasing stream of letters and an energy which cannot fail of success.

Failure is deservedly certain, the bill will be dead in a few days, if the veterinary profession does not *actively* (passive support doesn't count at all) support it. The task before us is not as difficult as when the bill was before the House Committee and our only danger now lies in relaxing our efforts. We must not suspend in the least our efforts for the passage of this bill, only transfer them to a new and unconquered field, we must not rest our case, for a week or a day upon what has already been won, for in practical results it counts for naught unless victory is also won in the Senate.

Keep after each senator from your state and also each member of the Senate Committee on Military Affairs (list appended) until you *have them on record*—a letter from each promising support of the Army Veterinary Bill known as the "Penrose Bill, S. 5792." Write the Senators at their home addresses or better, in care of Senate Chamber, Washington, D. C. When you have the statement of any over his signature that he will support this bill, send the letter (or a copy) at once to Dr. W. Horace Hoskins, 3452 Ludlow St., Philadelphia.

The Senate Committee on Military Affairs

Henry A. Du Pont, of Delaware (Rep.), Winterthur, Del., Chairman.

Francis E. Warren, of Wyoming (Rep.), Cheyenne, Wyo.

Joseph M. Dixon, of Montana (Rep.), Missoula, Mont.

Frank O. Briggs, of New Jersey (Rep.), Trenton, N. J.

Norris Brown, of Nebraska (Rep.), Kearney, Neb.

Simmon Guggenheim, of Colorado (Rep.), Denver, Colo.

Joseph L. Bristow, of Kansas (Rep.), Salina, Kan.

Wesley L. Jones, of Washington (Rep.), North Yakima, Wash.

William Lorimer, of Illinois (Rep.), Chicago, Ill.

Murphy J. Foster, of Louisiana (Dem.), Franklin, La.

Joseph F. Johnston, of Alabama (Dem.), Birmingham, Ala.

James P. Clark, of Arkansas (Dem.), Little Rock, Ark.

Geo. E. Chamberlain, of Oregon (Dem.), Portland, Ore.

Gilbert M. Hitchcock, of Nebraska (Dem.), Omaha, Neb.

John Sharp Williams, of Mississippi (Dem.), Benton, Miss.

"Nail them now."

PREVALENCE OF AVIAN TUBERCULOSIS

For many years Avian tuberculosis has been known to exist in this country but the matter has claimed little scientific attention

and has been regarded by practical poultry men as a matter of no importance. Very recently the bacteriology department of the Wisconsin Experiment Station has attempted to gather definite data relative to its distribution within the state with the result that several flocks have been found in the state where this disease has caused serious loss and in two outbreaks the majority of fowls over a year old have succumbed to its ravages.

Poultry raising in this country is a billion-dollar industry and anything that materially effects it either favorably or unfavorably is of great importance to the people as a whole. The subject of avian tuberculosis is closely allied to veterinary science and veterinarians will give its investigation careful attention.

A. V. M. A. MEETS AUGUST 26-30

As an Easter Greeting comes the announcement from Dr. Brenton, President of the American Veterinary Medical Association, that the forty-ninth annual meeting of the Association will be held at Indianapolis August 26th to 30th inclusive.

No city nearer the center of population in the United States could have been selected, nor is there a time more opportune for the meeting than the last week in August. All indications point to the most largely attended and in other ways the best meeting the association has ever held. No veterinarians possess more loyalty and patriotism than the Hoosier veterinarians, or are more enthusiastic and capable entertainers, and a "good time" is positively assured to all who attend.

An effort will be made to make the number joining the association at the Indianapolis meeting larger than ever before initiated at any one meeting, and the campaign for new members has already begun.

The present requirements for admission to membership in the American Veterinary Medical Association bar from it many who would make valuable workers if admitted. This is regrettable, for the association is a power for good, first to its membership and second to the whole profession, and the greater its numbers, quality being equal, the more it can accomplish. There is no good reason why any veterinarian qualified for membership in this association should deny himself the benefits accruing to its members.

It is none too early to file applications for membership, to be acted upon at the Indianapolis meeting; to be acted upon at this meeting the applications *must* be on file with the secretary, Dr. C. J. Marshall, 39th & Woodlawn Ave., Philadelphia, Pennsylvania, *not later than* August 1, 1912.

The following are requirements for admission to membership:

EXTRACTS FROM THE BY-LAWS

ARTICLE VIII. Sec. 1.—Each application for membership shall be submitted in the applicant's own handwriting upon one of the application blanks of the Association, and be duly vouched for in their own handwriting by two active members of the Association in good standing, resident in the applicant's State or Province, or by the President and Secretary of the Association. The application must be accompanied by eight (8) dollars to cover the membership fee and first year's dues, which sum shall be returned to the applicant should he fail of election to membership.

Sec. 2.—Except as provided in Sections three and four of this Article, only those veterinarians may be admitted to active membership who have spent not less than three collegiate years on the study of veterinary medicine, and have been duly graduated from an accredited veterinary college conforming to the following requirements:

A. Matriculation equivalent to requirements for admission to a recognized high school. Matriculation to a recognized veterinary college shall be one year of high school work or its equivalent, beginning with the term of 1914–1915, and that the requirement be raised to two years of high school work, parts of different calendar years, or its equivalent, beginning with the session of 1918–1919.

B. A curriculum of not less than three collegiate years, of not less than six months each, especially devoted to the study of veterinary science. Beginning with the session of 1913–1914, the curriculum shall cover a period of not less than twenty-four months of not less than three collegiate years devoted to the study of veterinary science.

C. A faculty of not less than five veterinarians eligible for membership in this association.

Sec. 3.—This Association will admit to active membership graduates from any four year agricultural college, who have been regularly graduated from a recognized veterinary college and allowed therein one year's credit for the agricultural course, provided said agricultural course includes in its curriculum sufficient veterinary science given under a qualified veterinarian.

Sec. 4.—A veterinarian, graduate of a veterinary college which at the time of his graduation, did not maintain educational standards in conformity with the active membership requirements of this Association, may, upon recommendation of the Executive Committee be elected to membership; provided, he has been duly graduated not less than five years prior to the date of application, and further, that the college has ceased to graduate veterinarians contrary to the standards now fixed by this Association.

Application for membership must be made on a blank furnished by the association. If you are not a member, better write now to Dr. S. Brenton, Detroit, Michigan, for one of the blanks, fill it out and send with your check for $8.00 ($5.00 membership fee and $3.00 annual dues) to the secretary of the association at the address given above. You will never regret your membership in the A. V. M. A.

THE MONON FOR VETERINARIANS FROM CHICAGO AND THE NORTHWEST

Chicago veterinarians are already planning to attend the A. V. M. A. meeting in Indianapolis in August. After a consideration of the various routes that may be traveled the Monon has been selected as the most desirable. It is deemed best to go in a body to Indianapolis as we went to Toronto last year and to invite all veterinarians going to Indianapolis via Chicago to join the party.

The Monon Route's "New Hoosier Limited" train leaving Chicago at 12:00 noon, arriving at Indianapolis at 4:45 p. m. has been selected as best suited to our requirements.

This train affords the western and northwestern delegates arriving in Chicago during the forenoon ample opportunity for a short and pleasant trip through Indiana, arriving at Indianapolis in plenty of time to reach their hotels before dark.

It will also be convenient for the delegates from Chicago and vicinity, as it will eliminate the necessity of leaving their homes early in the morning.

It is our desire to acquaint the delegates with the superior accommodation offered by the Monon Route's "Hoosier Limited."

This train was inaugurated recently for Chicago-Indianapolis patrons and is the only train of such character offered by any line. It does not handle equipment for connecting lines, therefore assures a fast schedule. The accommodations are superior in every way. Such a train east from Chicago would charge excess fare. It is vestibuled throughout. The coaches are roomy and each will *seat 100 people.*

The dining and parlor cars are models of car building. The diner seats thirty and the service is not excelled on any train.

The parlor car has a library end, parlor section with big plush covered revolving arm chairs. The rear of the car has a large observation room with movable arm chairs. The Monon Route will place special coaches in service, of the pattern regularly used in this train, August 25th, for our exclusive use.

"WORLD'S WORK" DEPARTMENT

We are particularly pleased with the offering in our abstract department this month. With these abstracts at hand no veterinarian is too busy to keep up with *every* advance in Veterinary Science. Here may be found the important things—the essentials from hundreds of pages and a dozen languages condensed to a few paragraphs that *give the gist* of it all. We appreciate, as we know our readers also do, most highly this skillful, painstaking, invaluable work of Doctor Fetzer.

THE temperature of young dogs during the first days of extrauterine life by Cavazzi, (Zentralblatt. f. Biochemie u. Biophysik. Vol. II, 21–22, p. 876.).—Directly after birth the temperature is 22.8°–27.5° C. (73°–81.5° F.), and within 9 hours a rise of about 10° C. takes place. On the second day a temperature of 33°–35° C. (91°–95° F.) is present, which gradually increases until 38° C. (100.4° F.) is reached on the thirty-sixth to forty-second day after birth. At this point it remains comparatively constant.

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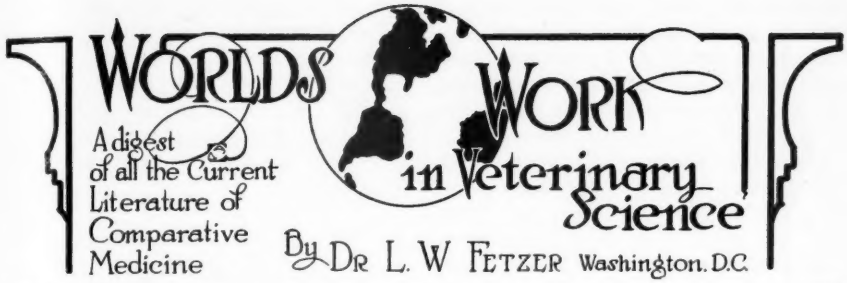
THE normal rate of respiration of our domestic animals, by H. Hepke (München. Tierärztl. Wchnschr., 1911, Vol. 55, No. 35, pp. 596, 597).—These observations were made with 140 horses of various breeds, thirty-eight large ruminants, seventeen sheep, twenty goats, thirty dogs, eighteen cats, and fifteen birds of various kinds in the veterinary clinic at Giessen.

Young and very old animals have a higher respiration than middle-aged animals. Females respire more often than males. Small animals have a higher respiration than large animals. The rate of respiration increases with the temperature. During sleep the amount of respirations are decidedly diminished. The position of ruminating animals has a great effect upon the respiration. During digestion the rate of respiration is increased. Psychic influences increase the respiration. The rate of respiration in birds was found to be much less than is usually stated in the text-books.


WORLDS WORK
in Veterinary Science
A digest of all the Current Literature of Comparative Medicine
By Dr L. W Fetzer Washington. D.C.

VACCINATION against blackleg in Southern Germany (Bavaria) T. Kitt (Ztschr. Infektionskrank. u. Hyg. Haustiere, 1911, Vol. 9, No. 1-2, pp. 99–119).—The vaccine employed for most of the cases was prepared by subjecting the powdered muscles obtained from animals affected with symptomatic anthrax to live steam.

The results obtained with this vaccine for the years 1898–1909 are tabulated and discussed in detail. The mortality in the case of vaccinated animals was very low.

Vaccination has been carried out in Bavaria for the last twenty years. The results of some tests in regard to ridding blackleg vaccine from anthrax spores are also included.

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IN REGARD to the infection of hogs with anthrax, Maag, (Inaugural Dissertation, Stuttgart, Münch. Tierärztl. Wchnschr., 1912, 56, 2, p. 38.)—Three hogs were infected per os, and 4 others were injected (2 subcutaneously and 2 intraperitoneally) with the cultures of the anthrax bacillus.

The following conclusions were drawn:

1. Hogs possess a relatively high degree of immunity against anthrax.

2. The condition of the quarters in which the hogs are kept play an important part in anthrax infection.

3. By subcutaneously injecting hogs with anthrax bacilli it is possible to produce a generalized infection in these animals. The bacilli can be reisolated in large quantities from all the organs and the blood.

4. In one case where the bacilli were fed per mouth and the capsule opened before it reached the stomach, etc., an infection was noted in the tonsils; hemorrhagic areas were present in the tonsils and stomach.

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CHEMO-THERAPEUTIC tests with animals affected with tumors, by A. V. Wassermann, et al., (Berlin. Klin. Wochenschr., 1912, Vol. 49, 1, p. 4).—While searching for an indicator of living cancer cells these investigators noted that the sodium salts of selenium and tellurium were reduced to their metallic state by the activity of the cell, the reduction being greatest at the site of the tumorous tissue.

The best indicator was finally found to be an eosin-selenium preparation which on injection into mice (intravenously) affected with cancer brought about the entire recovery of the animal; the growths did not recur.

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SYMPTOMATIC anthrax (Blackleg) in horses, by Diedrichs (Deut. Tierärztl. Wchnschr., 1911, Vol. 19, No. 7, pp. 97–99).—After pointing out the fact that symptomatic anthrax has not thus far been experimentally produced in horses, the author states that he has isolated a gram-fast rod bacillus from cases of supposed symptomatic anthrax which was highly pathogenic for rabbits and pigeons. It is, therefore, questionable, if the pseudo-symptomatic anthrax of horses is a specific infectious disease, or if the cases noted may be a septicemia or only accidental findings.

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SYMPTOMATIC anthrax versus pseudo blackleg, by W. N. Markoff. (Centbl. Bakt. [etc.] I Abt., Orig. 1911, Vol. 60, 3–4, pp. 188–222).—It was found that the condition known as birth blackleg is due to a variety of anerobic bacteria, and accord-

ingly is not a specific disease. It was furthermore noted that it could occur as a typical malignant edema infection or one of its varieties and also as a result of an infection with the blackleg bacterium.

The author finally points out the difficulties which surround the diagnosis of this complex and lays particular stress upon the fact that it can never be diagnosed with certainty on the basis of the microscopical test. Serological and cultural tests must be made.

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RABIES and its control in India, E. C. Webb (Vet. Jour. 1911, Vol. 67, Nos. 428, pp. 93–105; 429, pp. 157–165).—After discussing the etiology, pathology, symptoms, and diagnosis of rabies the author details the methods used in controlling the disease in India.

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POISONING of goats following the ingestion of pine needles, E. Fredrichs. (Berlin. Tierärztl. Wchnschr., 1911, Vol. 27, No. 30, p. 538).—Several goats died as a result of eating pine needles which were used as bedding. The symptoms in one of the goats which succumbed consisted of an increased frequency of the heart beat and respiration and trembling of the muscles. Five other goats which survived had the following symptom complex: irregular gait, muscular twitching, laryngeal paralysis, salivation, and disinclination to take food or water. After giving atropine and cereal decoctions they recovered rapidly.

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TESTS with extracts made from the hog erysipelas bacillus, by Block (Berlin. Tierärztl. Wochensch., 1911, Vol. 27, No. 21, p. 377).—In order to immunize animals against erysipelas the mere injection of immune serum is not sufficient. In order to produce such immunity investigators have resorted to the use of virulent cultures of bacteria or the use of extracts from such bacteria in addition. By using the latter procedure, that is, extracts of erysipelas bacteria and serum, the author obtained better results than with the virulent cultures and serum. One hundred and twenty hogs thus treated resulted in no deaths.

RESULTS obtained by vaccinating against canine distemper. C. Berndt. (Berlin. Tierärztl. Wchnschr., 1911, Vol. 27, No. 43, pp. 777–778).—From the results it can be noted that antidistemper serum is a valuable asset to those engaged in canine practice.

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CHICKEN cholera not a contagious disease. E. Marchoux (Compt. Rend. de la soc. de Biol., Vol. 68, pp. 346–347).—The author has studied chicken cholera for several years and now definitely decides that it is not contagious in the ordinary acceptation of the term. Contact, cohabitation, ingestion of the diarrheic fecal matters are all insufficient to assure the transmission of the disease. The excrement therefore does not contain the virus, since it is sufficient to touch a healthy mucous membrane with a virulent product to give the disease. The discharge from the nose, not constant, is virulent but does not play a very active part in spreading for the disease usually spreads with alarming rapidity. It appears likely that the disease can only be transmitted by an intermediate host as is generally the case with affections due to septicemia caused by an invisible virus. Attempts at infection with *argas persicus* have given no results.

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IN REGARD to the behavior of the red blood corpuscles and the hemoglobin content of blood in rheumatic hemoglobinemia in horses in comparison to healthy horses and horses having other diseases. König (Berlin. Tierärztl. Wchnschr., (1911), 27, No. 16, pp. 291, 292.).—The average erythrocyte content of the blood in healthy horses was found to be 8,323,000 per cubic centimeter (stallions 9,434,000, geldings 8,179,000, and mares 7,357,000) and the hemoglobin content between 95 to 105 percent.

As a rule the normal amount of red blood cells are present in rheumatic hemoglobinemia and only in severe cases which end fatally do they decrease; in fact, near the end there is an increase. In all stages of the disease, however, the hemoglobin content is increased, but during convalescence the hemoglobin percentage begins to de-

crease. The increased amount of hemoglobin in the blood is probably not dependent upon the destruction of the red blood corpuscles, but on the contrary, it seems probable that Fröhner's views in this respect are correct who considers that the increased pigment content of the blood has its origin from the muscles. In some internal diseases (various kinds of colic, gastroenteritis, pneumonia, tetanus, acute encephalitis, etc.) it was found that shortly before death a marked increase of the hemoglobin and erythrocyte content took place.

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THE process of disinfection by chemical agencies and hot water, by Harriette Chick (Jour. Hyg. [Cambridge], 1910, Vol. 10, No. 2, pp. 237–286, figs. 21).—The destruction of germs is a process which is dependent upon the time and the number of microorganisms present. The action of some disinfectants is dependent upon the action of heat. This process, however, is not an instantaneous one, but is gradual, and the destruction of organisms occurs in periods of 1-10. The process simulates a chemical reaction.

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IN REGARD to the sterilizing action of chloroform in the animal body, by H. Conradi (Ztschr. Immunitätsf. u. Expt. Ther., II, Ref., 1910, Vol. 3, No. 7, p. 802).—Rabbits which were infected with typhoid bacteria (acute and chronic cases) were injected per rectum with a 10-percent chloroform-cream-milk mixture, which resulted in the removal of the typhoid organisms from the tract.

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MORTALITY and incubation period of rabies in man, by S. Kozewaloff (Centbl. Bakt. [etc.], 1. Abt., Orig., 1911, Vol. 57, No. 5, pp. 393–397).—An analysis of the results obtained at the antirabes station at Charkow, Russia, with 25,608 individuals of which 24,051 were bitten and the remainder contact cases.

Dogs were the chief disseminators of the virus (90.6 percent), cats came next (6.1 percent), and then wolves (1.2 percent). The remaining 2.1 percent consisted of horses, bovines, pigs, etc.

In all 260 persons (which were treated) died. One hundred and sixty-one of these succumbed fifteen days after the final injection was made. The most fatal bites were from the wolf. No deaths occurred as a result of the bovine, horse, or pig bite. The period of incubation in 212 fatal cases was studied, and in 40.6 percent of these it was from twenty to forty days. A minimum of twelve days in a child was noted.

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THE treatment for metacarpal exostoses, by J. Löbl (Allatorvosi Lapok, 1911, No. 7).—Metacarpal exostoses occur in horses in various locations, viz., intermetacarpal, postmetacarpal, etc. The complications which often occur in this condition are pericarpitis and ankyloses.

In each form of treatment the hoof must be put in a normal position in order to insure an even distribution of the body weight. If lameness is present the animal is put at rest and cold applications (Priessnitz method) are made. Massage can also be used to advantage. Furthermore, ointments and applications, such as red mercury iodide ointment (1 to 6), antiperiostin, and cantharides ointment (1 to 4) can be employed, or the exostoses can be removed by surgical procedures.

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THE use of adrenalin for petechial fever in horses, by Schlampp (München. Tierärztl. Wchnschr., 1911, Vol. 55, No. 15, pp. 233–237).—Good results were obtained by subcutaneously injecting two to four Cc. of solutio adrenalini hydrochlorici (Takamine) diluted to 10 Cc. with water every second day. Four to five of such injections usually suffice. Within twelve to eighteen hours after the injection the temperature, which was around 40 to 40.7° C., fell to complete apyrexia. This remission of temperature resulted after each injection. The injections, as far as could be noted, did not seem to inconvenience the animal any.

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CONTRIBUTIONS to the etiology of petechial fever (Morbus maculosus), by A. Marxer (München. Tierärztl. Wchnschr., 1911. Vol. 55, Nos. 113, pp. 197–202; 14, pp. 217–220.—Petechial fever, which oc-

curs chiefly in horses and less frequently in bovines, is characterized symptomatically by the presence of numerous small or large hemorrhagic areas on the mucus membranes of the head and upon and under the skin. In addition there are swellings present on the head, neck, chest, abdomen, and extremities. The temperature and pulse are very variant and differ in each case. Obstipation and diarrhea may also be present. The mucous membranes finally become swollen and cause dyspnea.

As a result of the observations the author believes that this condition is not a specific disease, but must be considered a symptom complex caused by various microorganisms.

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STABILITY of microorganisms and immune bodies in leeches, by Steffenhagen and Andrejew (Ztschr. Immunitätsf. u. Expt. Ther., II, Ref., 1910, Vol. 3, No. 7, p. 798).—The typhoid bacillus remained alive for thirty days, paratyphoid bacillus for three months, hog cholera (pathogenic for guinea pigs) thirty days, anthrax bacillus fourteen days, tubercle bacillus (human type) twenty-eight days, bovine type of tubercle bacillus (Perlsucht) (pathogenic for guinea pigs) sixty days, *Trypanosoma lewisii* five days, and fowl spirochetes three weeks (pathogenic for only nine days).

Precipitating antihuman serum (1:20,000) showed after thirty days a titer of 1:5,000, and after 52 days 1:1,000; after 70 days it was inactive. Hemolytic serum with an initial titer of 0.001 had after twenty-five days a titer of 0.01, and after thirty-five days 0.1. Another hemolytic serum with an original titer of 0.00075 had one of 0.001 after fifteen days, and after eighty days 0.0075. Agglutinating paratyphoid bacillus serum (1:10,000) remaining intact for seventy-eight days, the cholera serum was not affected for forty days, a dysentery serum for fifty days, and a Gärtner serum for sixty-five days. The transference of a disease with leeches was partially successful.

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DIAGNOSIS of tuberculosis with tuberculin, by J. Lignieres. (Bull. Soc. Cent. Med. Vet. 1911, Vol. 88, No. 20, pp. 433-436).—If a positive reaction is obtained with tuberculin tuberculosis is present without a doubt, but if the reaction is negative one cannot be certain whether it is present or not. A good plan is therefore to use some of the other reactions (opthalmic reaction) in conjunction with the subcutaneous method.

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ABOLITION of the tuberculin test in Germany (München. Tierärztl. Wchnschr., 1911, Vol. 55, No. 17, pp. 276, 277).—The tuberculin testing of cattle coming into Germany from Denmark, Norway, and Sweden has been abolished. A clinical examination of all incoming cattle is, however, to be made, and when necessary a bacteriologic examination.

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THE intracutaneous test for diagnosing tuberculosis in bovines, by M. Christiansen (Maanedskr. Dyrlaeger, Vol. 22, No. 16).—These tests were made with 75 bovines which were designed for slaughter. The injections consisted of 0.1 Cc. of 50 percent tuberculin and were made into the skin, but not into the subcuticular tissue. The reaction, which manifests itself as an inflammatory edema, as a rule can be noted in from twenty to twenty-four hours, with a maximum of three days. Two days usually elapsed before the reaction could be noted in these experiments. The traumatic inflammation caused by the injection needle usually vanished after one day, and was entirely different from a positive reaction. Of the animals examined thirty gave a positive reaction, twenty-seven of which were found to be tubercular on autopsy.

—

OCCULT mesenteric tuberculosis produced experimentally in the dog, by P. Chaussé (Compt. Rend. Acad. Sci. [Paris], 1910, Vol. 151, No. 19, pp. 828, 829).—Occult tuberculosis was produced by feeding dogs with cultures of the human and bovine type of bacillus, and with sputum of bovine and human origin. Microscopic lesions were present only in the cases where the human tubercle bacillus was fed.

POINTED OPINIONS ON LIVE TOPICS by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the thanks of the editor, the approval of the veterinary profession and the lasting gratitude of those who are aided by your suggestions.

Some After-Effects of Parturition*

By C. G. HILL, M. R. C. V. S., Grange Road Darlington, Durham, England

FIRST of all I should like to mention accidental injuries to the vagina after a normal and unaided delivery. How often we country practitioners are called to a cow who is straining so much that one is afraid the uterus will become everted. On examination we find a tear of the mucous membrane of the vagina. We attend to it by antiseptic irrigation, put on a clamp and give strong sedative doses. Some cases will soon yield to treatment, while others continue to strain until they exhaust themselves, and you find the clamp producing sloughing of the lips of the vulva. No medicine seems to have any effect on the straining. I have tried chlorodyne, chloral hydrate, cannabis indica, without the slightest effect. On autopsy you find the vagina with a nasty sloughing of the mucous membrane where the injury has been. Never in my experience have I had the same trouble in cases where injuries have taken place in difficult deliveries.

Retention of the Placenta.—The more one sees of these cases the more one is at sea as to whether the afterbirth should be removed at once or given a little time. While one animal will retain the afterbirth for a considerable time without any bad effects, another in twelve hours will show evidence of septic poisoning. In the case of cows, in my opinion, no placenta should be interfered with under twelve to twenty-four hours after a natural and normal delivery, as in the uncontracted uterus it is utterly impossible to reach all the cotyledons to separate the placenta.

In the mare and bitch experience teaches us otherwise, and the placenta should not be allowed to remain longer than twelve hours. Both these animals are very susceptible to septic poisoning from the uterus. Every practitioner has his own particular way of removing the placenta, so I will not go into details as to which is the best way, but I think you all agree with me when I hazard the opinion that weights attached to the afterbirth cannot be too strongly condemned.

As to treatment to assist the expulsion of the afterbirth, do drugs have any effect? I think it is a fair question, and I am of the opinion that they are useless. Ergot may have some action on the muscular coat of the uterus, but to my mind the only means is removed by manipulation, followed by antiseptic irrigations. The very best antiseptic for this purpose is, I think, chinosol. You do not get the straining or irritable condition with chinosol that you get with mercury perchloride, izal, or any of the tar derivatives.

I have also used pessaries for the last two or three years, but I cannot say with the success that some veterinary surgeons ascribe to them. I would particularly like the opinion of others as to their usefulness,

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and what the base is of the pessaries they use, whether gelatine or cocoa butter.

In septic conditions of the uterus I think there is nothing better than daily washing out the uterus with a bucketful of chinosol solution. I have seen this reduce the temperature of cows two degrees in three or four hours. This treatment, with internal administration of stimulants and tonics, I find the best.

In the bitch septic conditions of the uterus are nearly always fatal, and you can not be too careful in the treatment during parturition. It is surprising, however, what a bitch will go through so long as you keep the uterus in an aseptic condition. There is a condition of the bitch,"endometritis," which reminds one of white heifer disease. I have had a good number of cases of this disease. The history is usually that the bed in the morning is wet, and that there is a slight discharge from the vulva, and as time goes on the hind parts become scalded, and the abdomen distended, as though she is in whelp. No systemic disturbance is noticed until the uterus gets very dilated. The only treatment in these cases is surgical. It is of no use to try to empty the uterus by the os, for if you succeed, which is most unlikely, the uterus will only fill up again. I have never hesitated, once I have made the diagnosis, but removed the uterus and the ovaries. In removing the uterus great care has to be taken, as the coats are very thin and easily ruptured, which will flood the abdomen.

In mentioning this condition it is not exactly correct to call it one of the after-effects of parturition, for I have seen it in a maiden bitch.

Postpartum hemorrhage.—This is a most alarming condition, and it has been my experience to be present at about six cases. The first case I saw was in a mare in my student days. The mare had been delivered by my preceptor of a live foal, and immediately the blood poured out of her just like out of a bucket and she died in less than five minutes.

My second case was in a cow, but fortunately there was a bucketful of cold water and a roller towel standing in the cow barn. I immediately plunged the towel in the water and introduced it into the uterus and began swabbing the walls of the uterus, and it contracted and the hemorrhage became arrested. The cow was very weak, but ultimately made a good recovery.

About two years ago I was called to a mare to remove the placenta. On introducing my hand I found the uterus full of clotted blood. I began to remove the clots when all at once the mare commenced to bleed, so I immediately had recourse to the towel and cold water, and the uterus began to contract, and I could feel it closing on my hand, and while this was going on the placenta dropped out. This mare made a good recovery. In these cases I think that is all one has time to do, as no internal hemostatics have time to act.

Unfavorable surroundings.—I attend the cattle market here, where every week some twenty to fifty cows give birth under, what I might say, most unnatural conditions. After taking long railway journeys, some give birth in open cattle trucks in their journey to the mart, they are knocked about, take pot-luck in every way, whilst in the majority of cases they come from farms where everything is quiet, to a noisy, hustling condition, which is quite foreign to them. Under these conditions you would naturally expect to get a large number with retained placentæ. This is not the case, for I get very few indeed. They never hurry a cow when calving, but give her plenty of time, in fact, nearly all calve without any assistance, and to my mind this answers the cause of a lot of these cases. If the cow were given more time during the act of parturition I think these retentions would not be so numerous, except in cases of abortion and premature birth.

TUBERCULOSIS LAWS STAND

At the recent session of the Kentucky Legislature a bill was passed virtually repealing the state's law for tuberculin testing. When this bill came before the Governor for his signature, strong pressure was brought upon him by the dairy interests of the state to secure his approval;

but the veterinarians and health boards of the state, with the aid of Drs. Melvin and Ramsey of the B. A. I., Dr. H. W. Wiley, at that time chief of the Bureau of Chemistry and Dr. Geo. R. White, Live Stock Inspector of Tennessee, prevailed upon Governor McCreary to veto the bill, convincing the governor that it was, as he put it in his veto message "Better to kill the cows than the children."

Kentucky veterinarians are to be commended for their determined and telling opposition to this measure which they believed inimical to the public health and welfare, though we believe certain derogatory remarks concerning Illinois legislation that were made during the arguments, might have been omitted, without jeopardizing their cause.

PECULIAR BREEDING CASE

I had a very interesting case in a pointer last month and it has puzzled not only me but a number of other practitioners who claim they never saw a case like it. Possibly some reader of VETERINARY MEDICINE can help me out and suggest a successful treatment.

A pointer bitch three years old, was sent to North Carolina to be bred. The owner of stud dog sent her back saying that she would take the dog but each time he was unable to get hung. This last time she was in heat she was brought to me, so I tried her with a pointer and had the same results as the man in North Carolina. I then used a vaginal speculum; then tried her with the pointer dog, again with same results. I then tried seven other pointers with same results. By this time the owner was disgusted and took his bitch home and tried her with a beagle stud which hung twenty-five minutes, the next day. The day following, she was brought back to me and tried again to a pointer with the same results as the first time. Every dog that served her entered all right and when I passed the speculum everything was clear.

This bitch was in prime heat willing to take all dogs, even held a cur with no better results.

J. H. SWEENEY, D. V. S.

Suffolk, Va.

CHOKE IN SUCKLING COLT

About one year ago, I was called to see a suckling colt about two months old, with the following symptoms and history.

This colt had been out in the yard on the evening before, and felt so good that it run and played until it was thoroughly heated and wet with perspiration. The next morning the owner had found it unable to suck; the milk returning through its nose. The colt looked gaunt and carried its nose slightly protruding. There was no swelling in the sublingual glands but a dullness in the post-pharyngeal region, temperature slightly elevated, otherwise no demonstration of any kind.

I reluctantly made a diagnosis of post-pharyngeal abscess, and prescribed accordingly. Along with other treatment I prescribed a gargle of potassium chlorate solution to be injected with a dose syringe.

On my way home my mind reverted to this case often and the more I thought of it the less I was suited with my diagnosis. However all doubt as to it was to be cleared up in an unexpected way, for when next I saw the owner he informed me that the first time he used the gargle the colt threw out a substances which he afterwards found to be some of its mother's feces, and could at once drink water, and nurse all right.

I have repeatedly seen suckling colts eat feces but never before saw one choked in this way.

D. K. BUZZARD, D. V. S.

Goshen, Ind.

FRACTURE OF THE FEMUR

I have a case of which I should like to have a diagnosis and treatment from some brother veterinarian with more experience than I in porcine practice.

A registered Berkshire boar, weighing about 600 pounds, appearing in perfect health and running in a small patch adjoining lot, on being called to his feed turned to come and suddenly fell and has not been able to rise on his hind feet since. He has been in this condition for two months, eats heartily and drags around on his front feet.

Nerve tonics do not seem to help him any. What is your diagnosis and treatment.

J. A. McCarley, D. V. M.

Lexington, Mass.

PRESCRIPTION FOR "HEAVES"

Enclosed find money order for two dollars for which mark me up two years for the Journal which contains more valuable information for the veterinary practitioner than any other journal published.

During the M. V. V. A. at Kansas City I promised you my prescription for heaves which has been used with perfect success in four chronic cases which I have healed. Two were very old horses and the worst cases I have ever seen.

This treatment seems to tone up the system in a manner that is surprising, as the coat becomes glossy, appetite improves, breathing becomes normal and animal takes on fat. I see in this month's journal that Doctor Saunders of the Ontario Veterinary College employs a treatment which is similar to mine and with success just as good, but no better. Use the two following prescriptions together:

No. 1.

Digitalis.....grs. 6
Hyoscyamine sulphate.....grs. 6
Strychnine arsenate.....grs. 6
Aqua.....ozs. 6
M. Sig. One teaspoonful in feed t. i. d.

No. 2.

Sodium arsenate.....grs. 6
Aqua.....ozs. 6
M. Sig. One teaspoonful in drinking water, t. i. d.

Owing to the expense of Hyoscyamine sulphate, use it in the crystal form; it is put up in one-dram bottles. Use digitalis also in the powder form. The other ingredients are not so expensive.

F. M. Starr, D. V. S.

Odessa, Mo.

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[We think you may substitute atropine sulphate for the hyoscyamine sulphate and secure equally good results with a very material saving in cost; and that by using digitalin in one-half grain doses instead of the powdered digitalis a better effect from this drug will be obtained and at the same time the whole prescription may be obtained in convenient tablet form.—Ed.]

LOBELIA FOR TETANUS

One of the greatest difficulties in the treatment of tetanus is to control the spasm and the nervous condition. After failing several times in cases of tetanus with the remedies generally used as sedatives and remembering the action of lobelia as a sedative in emphysema, I decided to try it in tetanus and used it hypodermically in large doses. Lobelia has come in general use lately for many ailments of man. The best results are obtained from its hypodermic use. It acts rapidly and is a stimulant, sedative and antispasmodic.

I have used lobelia hypodermically in conjunction with antitetanic serum with satisfactory results. The following cases are typical of the results I have obtained.

Case 1. Gray gelding, weight 1000 pounds. I found him one evening with his jaws set, and gave 3000 units of the antitoxin. The next morning I repeated this dose and gave hypodermically 15 Cc. of fluid extract of lobelia. This treatment was repeated daily for a week and the lobelia continued several days longer. The jaws relaxed on the nineteenth day. The patient made a good recovery; he was kept in a sling three weeks. I decided that I had not given the lobelia in large enough doses and increased it on the next case.

Case 2. A mare weighing 1700 pounds, in foal. I gave her 6000 units of antitetanic serum and 30 Cc. of lobelia hypodermically. Next day I gave her 9000 units of the serum and the same dose of lobelia. On each of the three following days I gave her 6000 units of antitetanic serum and 30 Cc. of lobelia as before. Then there was some edematous swelling along the neck. I did not see the animal for two days when jaws were relaxed (eighth day) and she was eating hay.

In all, this patient received 39,000 units of serum, and 150 Cc. of fluid extract of lobelia. This case was kept in a double barn with some twenty other horses, with no isolation. There was no nervousness.

I have used lobelia alone, on a colt a year and a half old in 30 Cc. doses where it relaxed the tonic spasm of the cervical muscles. In all cases relaxation takes place when this remedy is given in large doses. And where it can be repeated two or three times a day, it prevents the jaws and neck from becoming entirely rigid and shortens the attack—if it does not abort it in some of the milder cases, if given early.

As a nerve sedative given alone or with gelsemine or atropine it is worth a trial.

H. M. HALVERSON, M. D. C.
Yankton, S. D.

FATAL ACCIDENT FROM PARTIAL ANESTHESIA—A LESSON

I have recently lost a case from a cause entirely avoidable. I followed a procedure that has been followed by no bad results in at least thirty previous operations in my practice. There is no warning against this procedure in any textbook that I have access to, nor I think in any periodical; yet, the precaution omitted by me, and I believe by many practitioners, is so simple that it will pay you to read the balance of this communication.

A small standard-bred mare had a new growth about three-eighths of an inch in diameter on the right eye, apparently originating from the margin of the cornea. Expecting the growth to have a firm and rather deep origin, I had her prepared for chloroform anesthesia, with twenty-four hours' starvation. Not expecting to have expert help with the chloroform, I began with one and one-half ounces of chloral in good dilution per rectum, and followed with a Buntin anesthetic tablet, which to the best of my memory contains morphine, hyoscyne and aconitine. In about ten minutes she seemed rather quiet, and I instilled a little four percent cocaine solution with a few drops of adrenalin into the eye before proceeding to the general anesthesia. I then found that the growth was free in the conjunctiva, and easily picked it up and removed with scissors, the mare being in the standing position.

Everything had gone like clockwork, and the mare, though fairly quiet to work on, and very slightly unsteady on her legs, did not seem deeply narcotized. She was accordingly returned to the barn and no more attention paid to her, while I cleaned up and went away.

About four hours later, I was called up and asked if she ought to be coughing and in great distress. On arrival I found an extremely severe pharyngeal choke from masticated alfalfa. This was partly reduced by manipulation, and as the owner wanted to do something I recommended a few ounces of water given in a bottle in the mouth, but forbade any effort to force her to swallow. I think it quite possible that the mischief had already been done, as the cough was distressingly severe; however, as soon as my back was turned the owner proceeded to make sure of a fatal termination by forcing about two quarts of warm salt water down her throat—trachea. He got immediate relief from the cough, and the classical symptoms of inhalation pneumonia began to show up about thirty hours later. Death of course followed in a few days.

The lesson, and it is a very important one, is to withhold all feed after chloral, morphine, H-M-C, or allied semi-anesthetic drugs until perfectly sure that the patient is free from their influence.

A. W. WHITEHOUSE, D. V. S.
Boulder, Colo.

MICHIGAN ASSOCIATION MEETING

February 6th to 8th were the days of the thirtieth annual meeting of the Michigan State Veterinary Association, in East Lansing. There were fifty-three members and twenty-one visitors present. The latter including from outside the state, Prof. W. L. Williams of Cornell University, Dr. H. W. Pope of the Bureau of Animal Industry, Washington, D. C., Dr. E. H. Shepherd of Cleveland and Dr. D. M. Campbell of Chicago. Twelve applicants were elected to membership in the association.

Features of the meeting of unusual merit included an illustrated lecture by Prof. W. L. Williams on "Sterility in Cows," a paper by Prof. R. P. Lyman on "Differen-

tiation of Colics of the Horse," a paper by Dr. R. H. Wilson on "Biological Products," operations on two "roarers" by Prof. Williams, a "Tuberculosis Demonstration" by Dr. G. W. Dunphy, and at the annual banquet an address by President Snyder on "The Veterinary Division of the M. A. C." and an address by Prof. Williams on the subject of "Clean Surgery."

Dr. Judson Black, the efficient secretary of the association during the past decade was relieved of his duties in that office and promoted to the presidency. A well merited promotion, since to Dr. Black's untiring efforts as secretary much of the present success of the association is due.

THE CARABAO (WATER BUFFALO)

The carabao is an animal of the bovine species, weighing about 1500 pounds when full grown. It has the ordinary habits of bovines excepting its natural affinity for water and mud. If allowed to itself it spends the greater part of its time submerged. It covers itself with mud apparently for the purpose of keeping off flies and other insects. Its skin is thick, dark, and covered sparingly with hair. The horns are large and turn backwards toward the shoulders and are very effective weapons in a fight.

Native Carabaos, Philippine Island

Being an animal fond of the mud it is almost impossible to mire one of them and for this reason they are especially valuable as a mode of transportation in boggy places. They are used exclusively for plowing the inundated rice fields where it is impossible to use any other animal. They are very strong but slow and soon become exhausted when exposed to the sun while engaged in heavy work. If overworked in a hot sun the carabao becomes temporarily mad and will seek water wherever it can be found, often running through fences, brush piles or small houses until relief can be obtained by submerging itself in water, after which it becomes normal again. Like other bovines, it can be stampeded when frightened.

Susceptibility to disease.—The carabao, like other animals, is susceptible to many diseases. Those of vital importance to animal industry in the Philippine Islands, at the present time, are rinderpest, surra, and foot-and-mouth disease.

Of these, rinderpest, as far as the carabao is concerned, causes the largest percentage of deaths, and when combined with surra, which in many cases it is, the mortality is 100 percent. In some localities where the immunity is of a high order and the animals are free from surra, the percentage of mortality may be as low as ten. While on the other hand, in localities where immunity is wanting, the mortality may be eighty or even ninety percent.

Surra is a disease which the carabao seems to thrive on. Apparently from clinical symptoms the trypanosoma causes little or no evil effects whatever, and as far as I am able to learn not a single death can be attributed to surra alone. Many carabaos have been quarantined for a period of eight or ten months and at the end of this time the trypanosoma has disappeared without medication. Many subsequent examinations have failed to find it.

Foot-and-mouth disease while not producing a high mortality does cause considerable financial loss to the farmer, by laying the animal off from work for several months if the attack is a severe one and the case is neglected.

Immunity.—Of the diseases the carabao seems to be immune to, Texas fever and tuberculosis are the most important. Out of the hundreds of carabao on which I have held postmortem examinations, not a single one has shown any lesions of either of the above-mentioned diseases. I do not mean to convey the idea that the carabao is

absolutely immune to these diseases, but only that they are seldom ever found.

In the Philippines these animals are used for general farming, transportation and pack purposes. The only condition

Preparing the ground for rice

under which they are more useful than other animals is where work is to be done in wet boggy places.

The period of usefulness is from three to eighteen years of age, although many are known to be of service for a much longer time.

During an animal survey made in the province of Nueva Vizcaya last year one carabao was found with a registration document showing its age to be 43 years. Many others were found from 30 to 35 years old.

Country Transportation, Philippines

The cost of the carabao, as compared with the horse or bullock, far exceeds the latter. The average market price of the Philippine pony is $45, cattle $40, carabao $90.

The carabao is indispensable to the rice-growing industry of the Philippine Islands.

W. R. L. BEST.
Veterinarian, Bureau of Agriculture, P. I.

WRONGLY SUSPECTED PNEUMONIA IN A COW

Case 1. During the early part of the fall I was called to see a cow supposed to be coming down with pneumonia.

History.—For the past three or four days the animal would give short coughs, poke out the head and try to lick one of the nostrils. The third day she got so she ate very little and at this time I was called.

Symptoms.—The cow looked bright, temperature 101° F., respiration about normal, bowels the same. From looking her over I could see nothing that should cause any one to think she was sick except that she was not ruminating and I noticed a watery discharge from the left nostril, and on getting closer I could smell quite a stench as in catarrh. On turning the cow around I raised the head so as to let the sun shine directly onto the mucous membrane and in doing so quite high up in the nose I saw what appeared to be some leaves. On securing the cow's head, I made an examination with my finger and could feel something but could not make out for sure.

I secured some help and cast the cow. Then I could readily look up into the nose and see quite plainly what appeared to be a small stick or twig with some leaves on it. On getting hold of it, with long forceps,

the end pulled off; a second attempt was more successful. This time the trouble was removed which proved to be a willow twig fourteen inches in length that she had, in some manner, got with the hay. This was about 3-16 of an inch thick at the top end and tapered to a very fine point at the other. No treatment other than the removal was given and I heard no more from the case.

Case 2. Several years ago I was called to see a cow that was supposed to have tuberculosis. This cow annoyed the owner for some time before anything was said. He did not want to kill the cow since she was giving quite a quantity of milk, yet she had a nasty discharge from both nostrils and in blowing her nose threw this discharge in all directions regardless of where the owner stood and on one of these occasions just after a good mess of bran and chop had been given to her, and her owner with his head down was gazing into space and wondering what could be the matter with Jersey, she broke down with one of her elephant snorts with results that were indirectly very painful to Jersey. It struck him squarely in the face and white shirt front; by the time he had got himself cleaned up his wife had sent in a call to me to come and determine whether or not it was anything that could be remedied, or whether Jersey was to be sacrificed. The man said in no mild way so far as he was concerned he had enough of that old cow.

On arrival I found, as stated, pus being discharged from both nostrils and a plenty of it; otherwise the cow was in good condition, ate well, drank plenty of water and general appearance good. Temperature normal. There was no swelling of the facial bones. The stable being dark she was led over to the door and her head raised. On looking into the nostrils a hard weed could be seen in one of them. After securing the head an examination was made with the fingers and the stick plainly felt, an artery forcep was used in removing this. Another was located and several others, in all six sticks, or rather dried weeds were removed from the left nostril and two from the right. Eight in all, though the shortest one was about six inches and the longest twelve inches and in thickness, I think they would average about one quarter of an inch. The nose was cleaned with an antiseptic and for several days afterwards the cow was given internally small doses of bichromate potassium twice daily. This treatment was not a success. Whether or not there was another weed patch left that I did not get I do not know, but the discharge continued for seven months that I know of, when I lost track of the cow. Two years later I saw her again and at this time condemned her as tubercular on general appearances. Autopsy showed tuberculosis of the lungs, mediastinal glands, also in the abdominal cavity. Whether she had this at the time the weeds were removed I do not know for at that time she was apparently in good health, except for the discharge and this was accounted for by the weeds.

D. O. KNISELY, D. V. S.
Topeka, Kans.

DYSTOKIA—INFECTION—LAMINITIS

This patient was a sorrell mare, weight 1600 pounds, in good flesh, had been in labor several hours. Help had been given her by several farmers. On finding they could do nothing, a call was sent in. The place was fourteen miles in the country but I got there as soon as possible. Conditions on arrival were as follows:

The mare very restless, in standing position, was inclined to kick on being touched. This I think was largely due to the efforts of the persons in working with her. Her hind legs were tied loosely together so as not to have full swing and an examination made. I found both front legs just inside the vulva. On passing the hand further on I found the sternum of the colt which proved it was on its back. The head curved back under the pelvic bones with the nose up. After once locating the head I had no trouble in finding its exact position, but to raise it from there was quite another thing. In order to have more room and also to guard against the feet causing a bad tear I removed both legs at the knees. Then by forcing them back and to one side a blunt hook was placed into the jaw of the

colt. Then I placed the rope over my shoulder (after padding) and by two men holding down over it and myself raising up, we raised the head in about thirty minutes and had very little trouble from that on removing the colt. The mare was washed out with warm water and eucamphol and the owner instructed to bathe the parts often with hot water.

On account of the great amount of swelling that was there, a dose of bacterins was given and strychnine in one-half-grain doses every hour for twelve hours. Next morning the mare was so sore and stiff she did not want to move. I suspected laminitis, but was not called till the following day when I found her as I expected to with laminitis, very sore, temperature 105° F. A small stream runs through the farm and we placed her in cold water about eight inches deep and kept her there for twenty-four hours, when she was much improved and let run on green alfalfa.

I heard no more from her for eight days when I was called again. I found the left hind leg swollen immensely, hip and all. On manipulation I discovered pus in the leg and opened it just above and on the inside of the hock joint. Also found an opening on the left wall of the vagina. This was enlarged and a tube placed into it and warm antiseptic water used. It drained readily at the hock. This was irrigated daily for two weeks. When I saw the mare again the opening had almost closed and the mare was doing nicely. I forgot to say that bacterins had been given four days after the first dose and then every seven days until recovery was complete.

D. O. KNISELY, D. V. S.

Topeka, Kans.

INSPECTORS SEEK MORE PAY

BILL INTRODUCED INTO CONGRESS PROVIDING FOR INCREASE IN SALARIES OF THOSE IN MEAT SERVICE

A bill has been introduced into Congress by Congressman Wilson, of Illinois, proposing the raising of the salaries of meat inspectors, veterinary inspectors, inspectors' assistant and skilled laborers now employed by the Bureau of Animal Industry. It was referred to the Committee on Agriculture. The bill, which calls in each instance for an increase of $100 per year up to a certain amount, reads as follows:

"A bill to provide for the classification of the salaries of the meat inspectors, veterinary inspectors, inspectors' assistants and the skilled laborers employed in the Bureau of Animal Industry in the Department of Agriculture.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That from and after July first, nineteen hundred and twelve, the Secretary of Agriculture shall classify the salaries of the meat inspectors, the veterinary inspectors, the inspectors' assistants and the skilled laborers as hereinafter provided."

Sec. 2.—That all meat inspectors within the classified service and actually employed as such in the Bureau of Animal Industry of the Department of Agriculture, now established, who, at the date of July first, nineteen hundred and twelve, may be receiving a salary less than one thousand two hundred dollars per annum, shall thereafter, from said date receive an annual increase of one hundred dollars per annum until their salaries shall amount to one thousand two hundred dollars per annum; and, furthermore, that meat inspectors receiving a salary of one thousand two hundred dollars per annum may, in the discretion of the Secretary of Agriculture, receive an annual increase of one hundred dollars until their salaries amount to one thousand five hundred dollars per annum, and that said annual increase from one thousand two hundred dollars per annum to one thousand five hundred dollars per annum shall be governed by such rules and regulations as the Secretary of Agriculture may make.

Sec. 3.—That all veterinary inspectors within the classified service and actually employed as such in the Bureau of Animal Industry of the Department of Agriculture, now established, who, at the date of July first, nineteen hundred and twelve, may be receiving a salary less than one thousand eight hundred dollars per annum shall thereafter receive an increase of one hundred dollars per annum until their salaries shall amount to one thousand eight hundred dollars per annum; and, furthermore, that veterinary inspectors receiving a salary of one thousand eight hundred dollars per annum may, in the discretion of the Secretary of Agriculture, receive an annual increase of one hundred dollars until their salaries amount to two thousand four hundred dollars per annum, and that said annual increase shall be governed by such rules and regulations as the Secretary of Agriculture may make.

Sec. 4.—That all inspectors' assistants within the classified service and actually employed as such in the Bureau of Animal Industry of the Department of Agriculture, now established, who, at the date of July first, nineteen hundred and twelve, may be receiving a salary of less than one thousand dollars per annum, shall thereafter from said date receive an annual increase of one hundred dollars per annum until their salaries shall amount to one thousand dollars per annum.

Sec. 5.—That all skilled laborers within the classified service and actually employed as such in the Bureau of Animal Industry of the Department of Agriculture, now established, who, at the date of July first, nineteen hundred and twelve, may be receiving a salary less than one thousand dollars per annum shall thereafter from said date receive an annual increase of one hundred dollars per annum until their salaries shall amount to one thousand dollars per annum.

Sec. 6.—That there be, and is hereby, appropriated, out of any money in the treasury not otherwise appropriated, such sums as may be necessary to carry into effect the provisions of this Act, and that such appropriation be deemed an annual appropriation.

Sec. 7.—That all Acts and parts of Acts inconsistent with this Act be, and the same are hereby, repealed.—Copy supplied by DR. G. H. BEVINS, Sioux Falls, S. D.

DIAGNOSIS OF CONTAGIOUS ABORTION

From many points of view, the disease of contagious abortion is more to be dreaded by dairymen than tuberculosis, because heretofore it has not been possible at the outset to diagnose it readily, and no known method of treatment has proved successful.

Some years ago Dr. Bang of Denmark isolated the specific organism of this disease, and recently a scientific test, known as the complement fixation test, has been applied by him and his co-workers to this disease, by means of which it is possible to determine with certainty whether or not an animal is suffering from the contagious type of this malady. Dr. W. P. Larson brought this new test to us this summer, and work has been carried on in the departments of Agricultural Bacteriology and Veterinary Science on the application of this method to supposedly infected herds. In all, seventy-six animals in a number of different herds have been subjected to the test, thirty-two of which gave a positive reaction. In a number of fetuses from aborting animals, the specific organism of the disease has been isolated. The germ isolated proved to be identical with the Danish cultures, leaving no doubt as to the identity of the disease in this country with that in Europe. By means of this test, it appears possible to separate readily cases of infectious abortion from those due to accidents, wounds, or physiological causes. By means of this test, the presence of the disease can be determined from an examination of the blood a number of months either prior or subsequent to abortion, thus placing in the hands of the stockman a reliable means of determining the actual condition of an animal. It seems apparent that this method will prove of as much value for positive diagnosis of this disease as does the tuberculin test for tuberculosis. It would be of great value if prospective purchasers of pure bred stock could be insured in this way against both of these dreaded diseases.—*Report Wisconsin Agr. Exp. Sta.*

TREATMENT WANTED FOR CRACKED HEELS AND BOG SPAVIN

Have just been reading your journal this year, from which I extract a great deal of good, in fact think it is the best journal of its kind for the money, I have ever read.

I should like to get through it a treatment for cracked heels in race horses, a pair of which I am treating. I have used all kinds of ointments, etc., which only relieve for a time and when I quit using the condition returns, as before, sore cracks and fever, which makes the horses stiff on starting.

I shall be very grateful for the outline of a treatment in your valuable journal, that has proven satisfactory to some of your readers. I have a case of bog spavin which refuses to yield to treatment. It is of two years' standing, sometimes it is not so large as others. I should like to know if any of my brother veterinarians have a good treatment for such.

J. F. LAVERY, V. S.

Sutton West, Ont., Can.

SALT-PETER POISONING

The Hillsboro News-Herald contains the following item of local interest: "A. W. Lucas, near Marshall, found his pure-bred Durham bull and one of his cows dead in the field Monday morning. Dr. S. R. Howard was called as it was at first thought some one had poisoned them. An examination showed that the animals had eaten a part of a sack of *nitrate of soda* that had been left in the field and this had caused their death. The nitrate of soda had been taken to the field to mix with other things for fertilizer."—*The Adams County* (Ohio) *Recorder.*

TYPHOID BACILLI INCREASE IN MILK

It has been demonstrated that seventy-eight germs of typhoid placed in fresh milk became 60,000 in twenty-four hours, 10,300,000 in forty-eight hours, and 480,000,000 in seven days. This shows us how easy it is to infect milk or food of almost any kind with dirty hands. So, too, we can and do poison our own food when we fail to thoroughly wash our hands before each meal.—*The American Journal of Neuropathy.*

KILLED IN LINE OF DUTY

His many friends will be pained to learn of the death of Dr. J. D. Campbell, Larimore, North Dakota, from the kick of a horse which he was examining for soundness.

LOOKING FOR A PANACEA

Who will give me through (VETERINARY MEDICINE) the formula of "Hamer's Remedy", sold under a positive guarantee to cure fistula, poll-evil, thorough-pin, side-bones, feather-bones, splint, curbs, sweeny, bruises, saddle-sores, collar-boils, sore shoulders, grease heel, old sores, sprains, wire cuts, fresh wounds of any kind, distemper, warts, corns and lump-jaw.

G. D. WOOD, V. S.

Claremont, N. H.

TREATMENT FOR ACUTE LAMINITIS

Acute laminitis, is one of the commonest diseases we are called on to treat, and one that is treated in almost as many ways as there are veterinarians.

A treatment which I have used with never-failing success for several years, is as follows: first place the patient in a large roomy box stall

bed the stall well and induce him to lie down as much as possible.

Next wrap the legs from the knees and hocks to the feet with heavy bandages keeping them wet constantly with cold water.

Give one ounce of the following mixture every two hours: acetanilid, 1-2 ounce, alcohol two ounces, water sufficient to make four ounces. This is the minimum dose for horses weighing one thousand to twelve hundred pounds. Larger horses give one and one-half ounces at dose.

Four doses are all that is usually necessary to reduce fever and blood pressure.

Keep the bandages wet for four or five days. At the end of a week the patients are usually ready to go back to work.

If at the end of a week the soreness in the feet is not all gone, blister lightly around the coronet.

Treated this way I have never had any bad feet as a result of founder, but on the other hand I have had them recover so soon that my clients doubted their having had laminitis.

E. D. YERION, D. V. S.

Huntsville, Ala.

AN APPLICATION FOR SARCOPTIC MANGE

I read in the December AMERICAN JOURNAL OF VETERINARY MEDICINE, page 869, Dr. Cleveland's request for a treatment of sarcoptic mange. I will offer the following as I had good results treating horses with sarcoptic mange for two neighbors at the same time. One of the horses had been treated a year and had a reputation of rubbing himself out of any barn or paddock. In chronic cases I recommend venesection and arecoline. Wash well with solution of creolin and soap, then thoroughly rub in the following mixture:

Pine tar	ozs. 8
Sulphur sublimed	ozs. 8
Green soap	ozs. 16
Wood alcohol	ozs. 16

Mix and rub in thoroughly and leave on one week and then repeat. From one to four applications are required for a cure. Avoid heating the animal and clip close if the weather will permit. Be careful as man can contract the mange from horses and vice versa.

Let us hear from you as to the results you have.

O. D. CHEDESTER, D. V. S.

Cordell, Okla.

A COLIC DRENCH

Dr. W. B. Cox, Unity, Sask., Can., in the January number, page 28, desires to know a good colic drench to sell. There is one that works very well with me and has saved me quite a few night calls that sometimes a man does not care to make. In some cases I get the call anyhow in the morning, but most of these cases will get well, with this drench, if it is not a bad case of tympanites.

Oil turpentine	ozs. 2
Fluid extract nux vom.	oz. 1
Oil peppermint	dr. 1
Linseed oil q. s. ad	qt. 1

Give in one dose to large horse.

Will some one give me a formula for a good powder to kill lice?

R. LA POINTE, D. V. S.

St. Peter, Minn.

A PROPRIETARY COLIC DRENCH

In the January issue of VETERINARY MEDICINE, page 28, Dr. Cox asks for a real good colic drench that a veterinarian can sell to the horse owner to use for colic cases.

I think the doctor will find the following formula perfectly satisfactory.

Fluid ext. physostigma	min. 20
Fluid ext. cannabis indica	oz. ½
Turpentine	oz. 1
Eucamphol	oz. 1
Linseed oil. q. s. ad	ozs. 8

Mix and give at one dose as a drench.

FORMULA FOR DEPILATORIES

The following formulæ for depilatories given in Henley's Twentieth Century Book of Formulas are reported to be very satisfactory:

1. Barium sulphide ..... 3 parts
   Starch ..... 1 part
   Water, sufficient quantity.

The mixed powders are to be made into a paste with water, and applied in a moderately thick layer to the parts to be denuded of hair, the excess of the latter having been previously trimmed off with a pair of scissors. From time to time a small part of the surface should be examined, and when it is seen that the hair can be removed the mass should be washed off. The barium sulphide should be quite fresh. It can be prepared by making barium sulphate and its own weight of charcoal into a paste with linseed oil, rolling the paste into the shape of a sausage, and placing it upon a bright fire to incinerate. When it has ceased to burn, and is a white hot mass, remove from the fire, cool, and powder.

The formula is given with some reserve, for preparations of this kind are usually unsafe unless used with great care. It should be removed promptly when the skin begins to burn.

2. Barium sulphide ..... 25 parts
   Soap ..... 5 parts
   Talc ..... 35 parts
   Starch ..... 35 parts
   Benzaldehyde sufficient to make 120 parts

Powder the solids and mix. To use, to a part of this mixture add 3 parts of water, at the time of its application, and with a camels hair pencil paint the mixture evenly over the spot to be freed of hair. Let remain in contact on the skin for five minutes, then wash off with a sponge, and in the course of five minutes longer the hair will come off on slight friction with the sponge.

—*Physicians Drug New*

FOR SOAKING HARD FEET

Dr. J. N. Katzenberger, Garfield, Washington, asks for a satisfactory mixture of mud for applying moisture to horses' feet during dry seasons.

I have had considerable experience in the care of horses' feet extending over a period of more than twenty years training and racing a large stable of harness horses and as a practitioner, and I can assure Dr. Katzenberger that there is no mixture that excels blue clay and water as a packing for horses' feet.

In addition and the most useful method I find is the "swab" a heavy bandage four or five inches wide (silence cloth is a good material) and three to four feet in length rolled around the coronet and

kept wet. The top of the bandage folded in after it is rolled on forms a cup. This is kept on while the horse is at rest, as many hours as the individual feet seem to demand.

M. R. HIGBEE, V. S.

Albert Lea, Minn.

IODINE FOR CORNS

I might state here in reply to Dr. J. V. Katzenberger's of Garfield, Washington, request that the cure of corns is somewhat doubtful, but if the corn is cut out so that the blood runs freely and about 30 grains of iodine crystals is put right into the corn and then exploded with turpentine it is a great benefit.

D. A. ILLINGWORTH

Bennington, Vt.

CAMPHO-PHENIQUE; AN OFFICIAL REPORT

The Council on Pharmacy and Chemistry of The American Medical Association says of Campho-Phenique:

"This much-advertised remedy instead of containing 49 percent of phenol, was shown by analysis to contain not more than 20 percent, and that instead of 51 percent camphor, the amount contained was not over 38 percent. A third substance found was liquid petrolatum, which was present to the extent of 38 percent or more. In the case of the dry preparation, campho-phenique powder, made by the same firm, over 90 percent of it is inert, absorbent, talcum-like material. There is enough camphor and phenol to give the powder an odor, and this misleads physicians who are in the habit of crediting the statements of nostrum makers. It may be a fairly good dressing for wounds, but its name is deceptive. The principal, if not the sole owner, of the Campho-Phenique Company appears to be interested in the manufacture of a number of other products, which are simply nostrums that are in no sense 'ethical,' but simply patent medicines."

TO MANAGERS AND AGENTS OF RAILROADS AND OTHERS

In accordance with Sec. 2 and Sec. 9, Chapter 169, Session Laws of 1907 the following regulation is hereby established by the Live Stock Sanitary Board to govern the admission into the state of North Dakota of live stock of any class that originate in the state of Illinois.

All live stock of any class originating in the state of Illinois, destined to the state of North Dakota, must be accompanied by a certificate of health issued by a veterinary inspector of the United States Bureau of Animal Industry, the inspection to be made in accordance with the requirements of Chapter 181, Session Laws of 1911.

All stock not accompanied by a certificate of health issued by a veterinary inspector of the United States Bureau of Animal Industry must be held at the state line and inspected by an inspector of the United States Bureau of Animal Industry or an agent of the Live Stock Sanitary Board, the expense of said inspection to be paid by the owner of stock.

Penalty: Any one violating any of the provisions of this act or any rule or regulation made by the Live Stock Sanitary Board shall be guilty of a misdemeanor and be punished by a fine of not less than $25, or more than $500, or by imprisonment not less than thirty days or more than ninety days.

LIVE STOCK SANITARY BOARD OF NORTH DAKOTA.
Bismarck, N. Dak.

WHAT WILL REMOVE FETAL MEMBRANES

Please give me a formula for drugs that given orally will cause the expulsion of retained placentæ in cows.

A preparation is sold in a neighboring town *that does the business*. I should like to know its composition.

C. L. WILHITE.

Manilla, Ia.

A TREATMENT FOR GARGET

Does anyone know of a better treatment for a cow with garget than epsom salt, two pounds, followed with douches, and plenty of friction, and warm fomentations to the udder and a lotion composed of potassium iodide, crystal iodine, and aconite?

G. C. BOWEN.

New Hyde Park, L. I., N. Y.

DESIRES A VERMIFUGE FOR PUPPIES

I should be very much obliged if you could tell me the ingredients in Clayton's Liquid Vermifuge for Puppies, also in Dr. Cecil French's Vermifuge Capsules.

AUSTIN B. BYLES, D. V. S.

Los Angeles, Calif.

YOU SHOULD SEE THESE HANDSOME ILLUSTRATIONS

W. B. Saunders Company have just issued a new (16th) edition of their Illustrated Catalogue, which describes some forty new books and new editions published by them since the issuance of the former edition.

The books listed in this catalogue cover every subject of interest to the medical man. The descriptions and illustrations are such as to enable the reader to select easily just the book he wishes on any branch. *It is really an index to correct medical literature*—an index by which the practitioner, the surgeon, and the specialist can acquaint himself with what is new in the literature of his subject.

This edition also contains an illustration and description of Saunders' new building, now being erected on Washington Square, Philadelphia's new publishing center.

Any veterinarian wishing a copy of this handsome catalogue can obtain one free by addressing W. B. Saunders Company, 925 Walnut Street, Philadelphia.

PROSPERING IN ST. CHARLES

Dr. W. F. Flanary, of St. Charles, Minnesota, has just completed and is now occupying a new, adequately-equipped veterinary hospital, and better prepared than ever to take care of his large practice.

Dr. Flanary has been in St. Charles only two years. His work there is an example of what may be accomplished in a material way by push and ability.

VETERINARIAN ON GRILL

W. H. Gordon is charged with practising veterinary medicine without a license in a complaint issued by the county attorney yesterday.—*Salt Lake City* (Utah) *Herald-Republic.*

BRONCHITIS

This disease, which is an inflammation of the mucous membrane of the larynx, usually results from exposure to cold. The attack may be ushered in by a chill, followed by fever and the usual evidences of pain. There is hoarse cough, sensitiveness of the throat and difficulty attached to eating—enough, in fact, to cause the animal to decline food even when it is temptingly offered.

If Glyco-Heroin (Smith) is used sufficiently early, the attack may be successfully aborted. However, if treatment is not begun, the inflammation extends from the larynx to the neighboring tissues, the fever increases, cough becomes more frequent, breathing becomes labored and the animal wastes rapidly.

Laryngitis not infrequently becomes chronic, and as such is a constant source of pain and discomfort to the animal. When the disease has assumed the chronic condition, the physical state of the animal is much depressed, flesh is lost and there is always complete absence of energy.

It is the aim of the alert veterinarian to resort, in the beginning, to measures which prevent laryngitis from developing into a chronic form. To this end he makes use of Glyco-Heroin (Smith) as soon as the first symptoms of an attack make their appearance.

The manner in which Glyco-Heroin (Smith) is used in laryngitis can be seen from the cases here reported.

Cough, Clinical Reports

By J. F. DeVine, D. V. S., Goshen, N. Y.:

Case 1.—Bay gelding, hack horse, thin in flesh, capricious appetite, temperature normal, severe laryngeal cough of about four months' duration. Having been through the regular course of treatment for such condition, but with no benefit whatever, I prescribed Glyco-Heroin (Smith) half ounce three times a day. After he had taken one pound without any apparent result, I decided to give larger and more frequent doses. I prescribed two ounces every four hours. He showed decided improvement in three days, and in about ten days his cough had subsided, his condition improved, and everybody is pleased with the result.

Case 2.—Brown gelding, race horse, in perfect health; temperature normal, etc.; would jog at ease, but to start him at a violent paroxysm of coughing which would unbalance him and cause him to break. Prescribed Glyco-Heroin (Smith) two ounces every four hours, which proved effective in two days.

Cough in Dog, Clinical Report

By D. E. Buckingham, V. M. D., Washington, D. C.

A sixteen-year-old fox terrier was suffering with the most severe paroxysmal cough I have ever heard in a dog. Not more than ten minutes rest to the hour. Cough had been on about two weeks. I gave her large doses of Glyco-Heroin (Smith), she slept all night and coughed but seldom. Her general restive spirit was quieted and the characteristic propping of the body with forelegs and fear of lying down were overcome by a pleasant and soothing sleep.

Bronchitis, Clinical Reports

By R. F. Thomas, V. S., Llandillo, Wales:

Cow, six years old, with chronic bronchitis of two months' standing, giving a very markedly accelerated respiration and a general unhealthy look. The animal had no appetite and had been kept on gruel for the last few days. I happened to have a bottle of Glyco-Heroin (Smith) in my surgery, and ordered an ounce and a half of this mixture to be given three times daily. On the following day the breathing was freer and easier. The cow had some appetite for bran mash. The dose was increased by two ounces. Three days later I saw her again and found that her appetite had improved, her respiration was easier, and I ordered the Glyco-Heroin (Smith) continued in the same dose twice daily. At the end of a week from that day, all symptoms had disappeared; the animal's milk had returned and she continued to make good progress towards a perfect recovery.

Acute Bronchitis

By Thos. W. Spranklin, V. S., Baltimore, Md.:

This patient, a brown mare eight years old, had a severe jog over the race course. Came in sweating, was left in draught and chilled. Temperature 104°, respiration accelerated. Mucous rales in both lungs. Animal was given:

Glyco-Heroin (Smith) .....ozs. viii
Acetanilid.....dr. i

M. Sig., one ounce every two hours.

After first day improvement occurred; on second day to recovery, Glyco-Heroin (Smith) in ounce doses given alone t. i. d. Case recovered after five days' treatment.

Acute Bronchitis and Asthma

By D. E. Buckingham, V. M. D., Washington, D. C.:

Patient a tan terrier "Gyp", eight years old, just beginning to show asthmatic breathing and cough, was brought to my hospital. The acute bronchitis which complicated her asthma was caused by incessant cough. This kept her invalid mistress awake at nights and as the lady and the dog were inseparable it was very important to stop the cough. I prescribed Glyco-Heroin (Smith), twenty drops every two hours. She showed marked improvement after two doses and the first night slept better than she had for weeks. This improvement was maintained, and though a cure is out

of the question it is necessary to keep these cases under drug influence and Glyco-Heroin (Smith) does the work better than anything I have ever tried.

A TREATMENT FOR SKIN INFECTIONS

Having heard of your Oxynoleum preparation being good for wounds, open and running sores, I determined to give it a trial, and having one of my horses laid up this winter as the result of a cut on the foot which had become infected, thought this an excellent opportunity of trying out its therapeutic value, so used samples sent me. Inside of a few hours the condition of the wound showed improvement—the animal did not suffer so much pain—and in a few days the pus stopped—wound began to granulate and proceeded to a healthy termination.

I also found it excellent in the treatment of a skin infection (pimples and ulceration with loss of hair) in my horse. The new hair is now coming in nicely and the skin is smooth.

I have observed the use of many kinds of ointments but never anything to give the almost instant and permanent results I have had with Oxynoleum. Since then I have ordered it in pound lots and can recommend it to all my friends, as I believe that any preparation which has the merit yours has, should have the hearty support of every one.

GEO. J. GLADMAN, M. D., A. M.

A DRUG JOURNAL VALUABLE FOR VETERINARIANS

We are often asked whether the *Physicians Drug News* is a journal suitable for veterinarians and invariably answer, "Yes." It is not in any sense a veterinary journal although it does contain numerous veterinary formulæ but is strictly a "Pharmacy for Doctors." That a practical working knowledge of pharmacy is a valuable asset for any veterinarian no one will attempt to deny. Such knowledge is demanded daily in dispensing and prescribing. A better idea of just what *Physicians Drug News* contains for veterinarians may be obtained from sample copies which may always be secured upon request, but we give below a half dozen formulæ clipped from among nearly a hundred given in the April issue.

EUCAMPHINE

Can you advise me how to prepare "Eucamphine," a preparation widely advertized to veterinarians?

H. F., M. D. V.

—, Indiana.

—

Oil eucalyptus	ozs. 2
Oil camphor	ozs. 2
Carbolic acid	oz. ½
Compound solution of cresol, q. s.	pts. 2

Mix in order named.

The formula for the compound solution cresol is as follows:

Cresol	500 grams
Linseed oil	350 "
Potass. hydroxide	80 "
Water, q. s.	1000 "

Dissolve the potassium hydroxide in 2 ounces of water in a tared dish; add the linseed oil, and mix thoroughly. Then add the cresol and stir until a clear solution is produced, and finally sufficient water to make the finished product weigh two pounds.

—

A. C. E. MIXTURE

Alcohol	volume 1
Chloroform	volumes 2
Ether	volumes 3

The composition of this anesthetic mixture can easily be remembered by the rhyme: A. C. E., one, two, three.

This mixture is still occasionally called for, although it has been condemned some years ago by surgeons, on the ground that its rate of volatilization is unequal, and the anesthetized patient is subjected to varying vapors and not to an anesthetizing vapor of uniform composition.

—

WART ACID

Acid trichloracetic	Gms. 10
Acid acetic glacial	Gms. 90

Dispense in glass stoppered vials. This liquid is to be used with care and should be applied by means of a tooth pick directly on the wart and at the base of the wart several times a day.

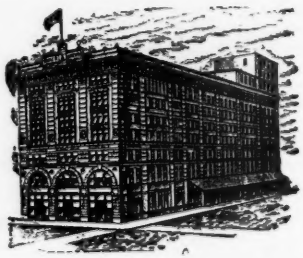
—

BISMUTH-IODINE PASTE IN DISCHARGING SINUSES

After unfavorable results with Beck's bismuth paste, and other methods usually employed, in cases of discharging sinus following operation for carcinoma of the breast, Dr. L. D. Green (Cal.

EIMER & AMEND

205-211 Third Avenue **NEW YORK**



We make a Specialty of all Drugs, Extracts, Tinctures, Chemicals, etc., etc., used in Veterinary Practice.
Sulfglycerole—for Skin Lesions.
Sulfglycerole Ointment—for Scratches.
Veterinary Glycerine Suppositories.
New York Agency for Bunton Drug Co.'s Hypodermic Veterinary Tablets.

¶ **We carry a very Comprehensive Stock of Laboratory Glassware and Apparatus, Chemically Pure Chemicals and Bacteriological Apparatus.**

Veterinary Medicine Catalogue gladly sent on request.

State Jour. of Med., Dec.) incorporated in the paste tincture of iodine, with the result that the sinus closed in ten days after three injections. He has since used it in a number of other cases with equally good results.

The formula used is as follows:

Bismuth subnitrate	30
Vaseline	60
White wax	5
Paraffin	5
Tincture of iodine	2

The iodine should be added after the other ingredients have been thoroughly mixed and the paste well stirred whenever used.

PASTE FOR STICKING LABELS ON TIN

It is stated by a contemporary that a paste for sticking labels to tin may be made as follows:

Starch	lb. 1
Water	ozs. 10
Solution tin chloride	ozs. 4
Glycerin	oz. 1
Oil sassafras	gtt.30

Mix the tin chloride solution with the water and glycerin and add to the starch; boil the whole until a clear paste is formed. Then allow to cool, and when nearly cold add the oil.

ARECOLINE DOSAGE

Dr. A. L. Warth who wrote the article entitled "Impaction on Grass," which appeared on page 113 of the March issue of VETERINARY MEDICINE, will get more gratifying results from arecoline if he will administer one and one-half grains, and then if he does not get results he should give one-half grain every thirty minutes until active peristalsis is started, profuse salivation occurs, or until four and one-half grains have been given.

All veterinarians should read a special booklet on arecoline which is sent free upon request to all qualified veterinarians by The Abbott Alkaloidal Company. I always use arecoline (Abbott) and find it far superior to other brands.

GLENN E. PARSHALL.

Ramona, Okla.

CHOKE EMPHYSEMA OPHTHALMIA

On page 157 of VETERINARY MEDICINE H. F. D. asks for an insecticide powder. Would not bismuth, salicylic acid and lime answer?

OXYNOLEUM **An Improved Moist, Antiseptic Surgical Dressing that Reduces Inflammations.**

A successful treatment for summer sores, jack sores, exhuberant granulations, decubital sores, ulcers, chafing, inflammatory skin diseases, eczema, acne, ringworm, etc., etc.
Superior to all other dressings in the property of evolving oxygen slowly and continuously.

Price per one-pound can prepaid, $1.25
Send for formula and literature
BIOPLASM MANUFACTURING CO.
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Write for full Information

1336 East Fifteenth Street
KANSAS CITY, MISSOURI

Regarding choke, arecoline does beautifully with me and may be repeated twice daily if the obstruction persists. Oat hulls are sometimes difficult to expel.

I have known two very valuable horses killed by the attendant giving water, which the horses drank voluntarily, and it entered the lungs (?) and killed both of them.

Iodine is O. K. for periodic ophthalmia, but I never thought of the orbital fossa for injection.

G. C. BOWEN, V. S.

New Hyde Park, L. I.

PAMMEL'S POISONOUS PLANTS

(*Excerpt from a review of this excellent work.*)

On the whole, then, we may thank Prof. Pammel and the numerous collaborators whose help he acknowledges for the best book of its kind which we know of in this language. We have many good books upon botany pure and simple, but not upon toxicological botany; and we need only add that the present one, giving very special attention to the subject from the veterinary standpoint, will be much more useful to the veterinarian than to the physician. One factor which may militate against its success is that its scope may be thought to exceed the requirements of the general practitioner—but that, again, is an error upon the right side.—*The Veterinary Record.*

AN EQUINE OPERATING TABLE

AMERICAN JOURNAL OF VETERINARY MEDICINE:

Since installing an operating table four years ago, we have received many inquiries as to the value of a table to the veterinarian. As an answer to all such inquiries, we beg your indulgence in publishing the following for the benefit of the profession:

The "Simplicity Humane Operating Table" which we installed four years ago has given excellent service, has never been out of order for one minute, but has been in daily use since its installation. We like the rotating feature very much, as it enables us to get plenty of light on our work.

The dominant feature of the "Simplicity Operating Table," is the accessibility to every part of the animal; we have had horses brought to us with injuries upon nearly every conceivable part of the body, yet all injuries were accessible when the animals were placed upon the operating table. It is an easy matter to handle any horse, with the "Simplicity." Two men can place an animal in any desired position of restraint and keep it there.

There is another very valuable phase of the operating table to which we must call the attention of the profession. This table has increased our practice wonderfully. Not only have people brought horses from a long distance, because of our having the table, but those living in our immediate vicinity have brought to us minor, as well as major

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Practice, Hospital and Hospital Equipment in one of the best Southern Cities of 125,000 population.

Noted Live Stock Raising Section. Ideal Climate.
Cultured and Refined People. Very little Competition.

A rare opportunity for a desirable location at a reasonable price. Practice done for the past 9 years is as follows:

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1905–12,971.00	1908– 13,138.00	1911– 14,790.00

Books open for inspection to prospective purchasers.

Good reasons for Selling. **Price $7500.00**

Address B., care

AMERICAN JOURNAL OF VETERINARY MEDICINE

1761 Lawrence Ave., CHICAGO

surgery, knowing that with the table we would handle their animals safely and humanely and at the same time place them in a position to give proper treatment, insuring the very best results possible.

We must inform you that the results of our operations upon horses since installing the table have been uniformly good and of a most pleasing nature, operative wounds nearly always healing by first intention. We often wonder how in the world we ever got along without an operating table, and we are yet wondering, why in the name of common sense, all veterinarians who are able to buy one, do not install some sort of a table.

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FREELAND BROS.

Marion, Kan.

A "KING'S" OPINION OF "VETERINARY MEDICINE"

Enclosed find $1.00 for my renewal.

You publish some of the worst articles I have ever read but keep them going as I like to see how foolish some writers can be when at their best. Then, too, reading them does as much good in a way as the real thing, for the criticism helps, and makes one review his work.

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J. KING, V. S.

Carlyle, Sask., Can.

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Doctor Conkey spayed one sow, but again, Doctor Richards spayed two heifers, and I think that all present would agree that Doctor Richards' operation was the more interesting.

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Regarding choke, arecoline does beautifully with me and may be repeated twice daily if the obstruction persists. Oat hulls are sometimes difficult to expel.

I have known two very valuable horses killed by the attendant giving water, which the horses drank voluntarily, and it entered the lungs (?) and killed both of them.

Iodine is O. K. for periodic ophthalmia, but I never thought of the orbital fossa for injection.

G. C. BOWEN, V. S.

New Hyde Park, L. I.

PAMMEL'S POISONOUS PLANTS

(*Excerpt from a review of this excellent work.*)

On the whole, then, we may thank Prof. Pammel and the numerous collaborators whose help he acknowledges for the best book of its kind which we know of in this language. We have many good books upon botany pure and simple, but not upon toxicological botany; and we need only add that the present one, giving very special attention to the subject from the veterinary standpoint, will be much more useful to the veterinarian than to the physician. One factor which may militate against its success is that its scope may be thought to exceed the requirements of the general practitioner—but that, again, is an error upon the right side.—*The Veterinary Record.*

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The dominant feature of the "Simplicity Operating Table," is the accessibility to every part of the animal; we have had horses brought to us with injuries upon nearly every conceivable part of the body, yet all injuries were accessible when the animals were placed upon the operating table. It is an easy matter to handle any horse, with the "Simplicity." Two men can place an animal in any desired position of restraint and keep it there.

There is another very valuable phase of the operating table to which we must call the attention of the profession. This table has increased our practice wonderfully. Not only have people brought horses from a long distance, because of our having the table, but those living in our immediate vicinity have brought to us minor, as well as major

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Again, the report states that Doctor Conkey chloroformed a horse which was operated upon, and recovery was exceedingly rapid, etc.

Now, neither Doctor Dykstra, who had charge of the clinic, nor I saw anything of this part of the program. Where was this part carried out? Certainly *not* at the meeting. There was only one horse chloroformed and that was a dissecting subject which was used to show an operation for roaring, and when the operation was completed, sufficient chloroform was given to destroy the animal.

If the article means that Doctor Conkey's method of chloroforming was employed but that Doctor Conkey did not chloroform the animal again I must contradict that, as the one who applied the chloroform did not do it under any suggestion whatever from Doctor Conkey, nor does he recall that Doctor Conkey ever made a suggestion concerning it.

Honestly, Doctor, I do not understand how the one who wrote the article for the AMERICAN JOURNAL OF VETERINARY MEDICINE got things so badly mixed. J. H. BURT, *Acting Secretary.*

Manhattan, Kan.

HAS NO EQUAL FOR GALLS AND BRUISES

I find Oxynoleum to be as good, if not better, than any ointment I have ever used in the skin diseases of domestic animals. It is a superior dressing for fistulous tracks and for galls and bruises it has no equal. I have kept track of a number of cases and this is my opinion.

Oxynoleum will always be in my grip, as I believe it to be the greatest healing ointment we have.

W. T. CAMPBELL, V. S.

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That the writers of these articles understand the principles of surgery we all admit, and that they achieve remarkable results in their well-equipped hospitals is equally true; but placed under the conditions with which the general practitioner has to contend, would their results in the treatment of wire cuts, puncture wounds, abscesses, etc., be any better than the results the general practitioner secures from his more or less imperfect cleansing

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and the powder, ointment, or other application that he leaves for the owner to use?

There are a large number of wound treatments in use among veterinarians. Some use various powders—dry dressings, and condemn greasy applications under all circumstances; others use ointments exclusively; others use fiery liniments and still others solutions of carbolic acid or other coal-tar preparations. Are any of these preparations worth while and which if any, is best?

What local applications (medicinal), do you use for the various classes of wounds? Let us have *your* formula, tell *where* and *how* used and with what *results*. To show our appreciation of your interest in this matter we shall send a cloth-bound copy of **"Springtime Surgery"** to those sending formulæ deemed worthy of publication. Be explicit in your directions and give a fairly complete description of the results from your treatment, briefly citing case reports when convenient.

DEATH FROM FILLARIA IMMITIS

I was called to perform an autopsy on a dachshund which had died very suddenly. When I arrived I was told by the owner that the dog was in apparently good health in the morning but that at noon when the kennelman went out to feed he seemed to be breathing hard and was dead within five minutes. He died without a struggle and exhibited no symptoms of illness other than the heavy breathing at any time.

I could find nothing wrong until I reached the heart when upon opening the left auricle I found a bunch of six worms which I believe were what is known as filaria anularium which must have interferred with the valve action of the heart. How could a dog with this affection appear in good health up to the time of his sudden death, for the worms must have been there some time?

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